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ABSTRACT

This document is a report of a symposium whose participants are involved with the Home-School Study of Language and Literacy Development, a project engaged in a longitudinal study of 80 low-income families with preschool-aged children in Boston (Massachusetts). The project was designed to identify possible success factors for children from low-income families who develop appropriate literacy skills by the third or fourth grade. The first paper, by Catherine E. Snow, discusses current research on reading development; differences between the project's work and previous research on the determinants of literacy development; the theoretical basis for the larger research plan; information about the families and children in the sample; and an overview of data collection and analysis procedures. The second paper, by Jeanne M. De Temple and Diane E. Beals, focuses on social supports for literacy development in the home and examines data drawn from talk that occurred during four activities involving children and their mothers. The third paper, by David K. Dickinson and Miriam W. Smith, concerns typical language and literacy experiences of children in preschool classrooms at the ages of 3 and 4 years. The fourth paper, by David K. Dickinson and Patton O. Tabors, analyzes a series of tests that were developed for the project and administered to children to assess aspects of their language and literacy development. A reference list cites about 50 items. The protocol for the School-Home Early Language and Literacy Battery--Kindergarten (SHELL-K) is appended. (SH)

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The Social Prerequisites of Literacy Development: Home and School Experiences of Preschool-Aged Children from Low-Income Families

A symposium presented at the annual meetings of the American Educational Research Association, April 7, 1991, Chicago

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The Theoretical Basis of the Home-School Study of Language and Literacy Development

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The literacy development of low-income and minority children living in urban centers is currently a matter of considerable concern because of continuing evidence that these children lag far behind more economically and socially advantaged children (National Assessment of Educational Progress, 1985). Not only do some children get off to a slow start, but differences in achievement linked to socioeconomic status become greater as children move into the middle elementary grades (Chall, 1983). Furthermore, many young adults emerge from high school with literacy skills too poor to enable them to acquire new information from print or to be critical about what information they do gain through print. Surveys of the status of literacy in the United States indicate that, while there are not large numbers of people unable to decode simple texts - perhaps only about 5% are illiterate using this definition - many citizens do have literacy skills so limited that they cannot read newspapers easily, understand manuals for the operation of mechanical equipment, write letters, fill in any but the simplest form, or in other ways function as informed citizens capable of maintaining the types of jobs which will increasingly be available in the 21st century (Kirsch & Jungeblut, 1987). Among those with limited skills we find a disproportionate number who come from low-income families and who may also raise their own children in poverty. The failure of large numbers of young adults to acquire reading skills commensurate with the demands of our increasingly technological job market is now recognized by corporate leaders as posing a serious threat to the economic future of the United States (Fiske, 1989).

Although the children of low-income families are more likely to experience difficulties with literacy development despite the best efforts of governmental agencies and school districts, some of these children will be successful in developing appropriate literacy skills by the third or fourth grade. The Home-School Study of Language and Literacy Development, the topic of this symposium, is a project which is currently engaged in a longitudinal study designed to identify possible success factors for these children. More than 80 low-income families with preschool-aged children have been recruited from the Boston area to participate in the project which involves observation and testing of the children at home and at school. Supported first by the Ford Foundation and now by the Spencer Foundation, the Home-School Study is in its fourth round of yearly data collection. Future plans for the project include following the same children through third or fourth grade in order to have a more complete picture of literacy outcomes.

In this paper the following topics will be discussed: 1) current research on reading development to provide a context within which to understand our preliminary findings and our plans for continued data collection; 2) how our work differs from previous research on the determinants of literacy development; 3) the theoretical basis

for our larger research plan; and 4) information about the families and children in our sample and an overview of data collection and analysis procedures. The following papers will discuss findings from the home and school data analyses, and the relationships between the home and school measures and a series of outcome measures at age five.

Situating Our Work Relative to Current Reading Research

Educational research on the cognitive abilities which support literacy development typically begins when children start to receive formal reading instruction, and then focuses on cognitive achievements that correlate with later reading, as well as seeking effects of the reading instruction provided by schools. These emphases can be seen in the large number of studies showing that children with high levels of phonemic awareness read better (e.g., Bertelson, 1986; Read, Zhang, Nie & Ding, 1986; Warren-Leubecker & Carter, 1988) and in work showing that orthographic sensitivity relates to early reading achievement (e.g., Barron, 1986; Ehri, 1984; Stanovich & West, in press). Recently research attention has turned to the phenomenon of 'emergent literacy', or development of literacy-related skills prior to the commencement of formal reading instruction (e.g., Bissex, 1980; Clark, 1975, 1984; Dickinson & Snow, 1987; Ferreiro & Teberosky, 1982; Heath, 1983; Snow & Ninio, 1986; Sulzby, 1986; Teale, 1986). However, like other reading research, this work has generally focussed on skills that support early decoding (Dickinson, 1991). It fails to make any connection between skills acquired during the preschool years and the literacy achievements of children in the middle grades of elementary school, when they move beyond decoding to become fluent readers capable of extracting new information from text.

Furthermore, although a considerable amount of work has been devoted to trying to identify the factors that predict literacy achievement, a problem with this work has been its almost exclusive focus on either school or home influences on literacy development (with only a few exceptions, such as Heath, 1983; Snow, Barnes, Chandler, Goodman & Hemphill, 1991; and Wells, 1985). We know very little about whether home experiences or school experiences are more crucial to literacy development, how home and school experiences differ or complement one another, or how skills children acquire in one setting get utilized in the other. We know even less about relationships between children's experiences at either home or school and their developing literacy skills.

There are a number of ways in which our project is distinct from traditional reading research:

- We are attempting to describe the environmental supports for literacy development provided both in the home and at school; collecting data both at home and at school will enable us to see how home and school experiences complement or undermine one another.

- We do not subscribe to the notion that facilitative family or school experiences will be identical for all successful children. In an attempt to identify the various paths to literacy that work particularly for children in low-income families, we have chosen not to seek social class differences. Instead we have limited our sample to low-income families in which the parents have limited education.

- We are basing our work on extensive previous analysis of oral language skills and their relation to literacy skills; our model, which proposes prediction from aspects of social interaction to oral language achievements, and in turn from oral language skills to literacy achievements, provides the basis for interpreting data on how the preschool child's linguistic environment impacts on his/her later school achievement.

- We are focusing on development of skills that we believe support reading comprehension and other later developing literacy outcomes in addition to considering skills associated with decoding.

- We began to study children when they were three, and we plan to follow their development through the middle grades of elementary school; thus we will provide a description of how preschool literacy experiences relate to later school literacy achievements, and

- We are collecting spontaneous language production data in the home and school as well as data on children's performance on structured language and literacy tasks, including standardized norm-referenced tests.

Theoretical Underpinnings

Considerable research now suggests that, in addition to the phonemic awareness skills which support early decoding, skilled reading also requires more general oral language competencies (Snow, 1991, in press; Snow & Dickinson, in press; Velasco, 1987, 1989). In brief, the argument is that oral language should not be seen as a monolithic capacity; rather, children develop an array of language skills each related to a different set of purposes. These various oral skills are differentially related to literacy. One major function language serves is to enable negotiation of interpersonal relationships; the skills relevant to interpersonal negotiation are honed through face-to-face conversations in which speakers and hearers may draw upon such resources as shared knowledge, gesture, interactive negotiation of meaning, and listener feedback. These physically, socially, and historically 'contextualized' uses of language contrast with uses of language to convey novel information to audiences who are at a distance from the speaker and who may share only limited amounts of background knowledge with the speaker. Skill at using language for these different purposes is not evenly distributed across speakers. For example, Snow's work with two samples of bilingual school-aged children has revealed low correlations between skill at contextualized and at decontextualized uses of language

within a single language (e.g., English) but high cross-language correlations for either contextualized or decontextualized tasks (e.g., English to French) (Lanauze & Snow, 1989; Ricard & Snow, in press; Schley & Snow, 1991; Snow, 1990, 1991; Snow & Dolbear, 1988). The finding that oral language abilities fall out into different clusters is particularly significant because only the more decontextualized language skills have been found to relate to literacy (Cummins, 1983; Snow, 1983, 1987; Snow, Cancino, Gonzalez & Shriberg, 1989). Thus, we hypothesize that early development of skill with decontextualized language will be related to reading comprehension abilities when children are in the middle grades of school. For preschool-aged children, decontextualized language skills are reflected by and may be developed during engagement in extended discourse forms such as explanations or personal narratives and in the use of language to create fantasy worlds and convey information to relative strangers.

Following the lead of much recent reading research (Snow & Dickinson, in press), we also assume that reading is a multi-componential skill. As such, we assume that different components are fostered by different experiences. For example, while early exposure to rhyming materials may foster phonemic awareness, opportunities to use language to convey novel information may support development of decontextualized language skills which, in turn, bolster reading comprehension. Other recent research on early literacy shares our assumption that certain types of language skill associated with written language are critical for later reading. However, with few exceptions, this work implicitly assumes that these language skills result from direct contacts with print, e.g., during book-reading. In contrast to this model of literacy development, we believe that the language skills that support reading emerge as a result of a variety of interactive experiences during which children learn to use and understand decontextualized language.

The model we are working with identifies four domains of skill developed during children's preschool years: conversational language skill, decontextualized oral language skills, print skills, and emergent literacy skills. We expect that different kinds of experiences during the preschool years facilitate the development of skills in each of these domains. Of course, some experiences, like reading books with a parent or preschool teachers, may develop aspects of skills in more than one domain, e.g., print, emergent literacy, and decontextualized oral language skills. Furthermore, we argue that school literacy outcomes in grades one and two may be quite strongly related to preschool print skills, whereas school literacy outcomes in grades four and higher, when reading comprehension becomes an important factor, may be more strongly related to oral decontextualized language skills (see Figure 1.1).

Home-School Study of Language and Literacy Development

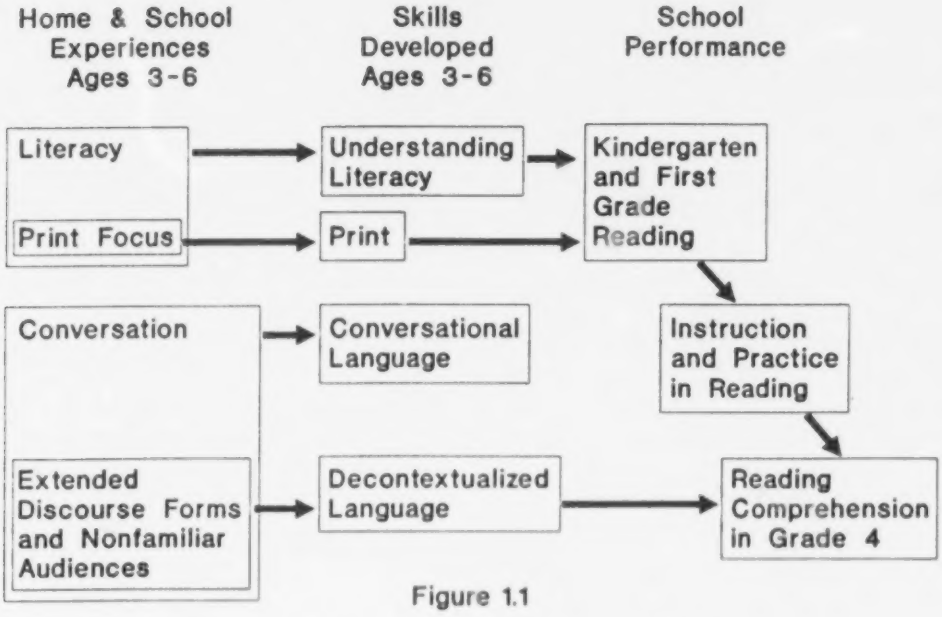

Figure 1.1

Specific hypotheses that emerge from this model include the following:

- Preschool children will show patterns of oral language skill that replicate those we have found for older children: there will be high correlations across measures that reflect ability to use language in decontextualized ways, and low correlations between contextualized and decontextualized tasks.

- Certain social experiences at home and at school will relate to children's contextualized oral skills, whereas quite different aspects of home and school experiences will predict their decontextualized skills.

- Emergent literacy skills that relate closely to print knowledge will be predicted by experience with print, exposure to print, and direct teaching of print skills, but will not relate to decontextualized oral language skills.

- Preschool print skills will predict reading achievement in first grade, and to some extent in second grade, but not so strongly in third or fourth grade as decoding ability becomes a much less important source of individual differences in reading.

- Decontextualized oral language skills at ages 5, 6 and 7 will show moderate correlations to reading scores in first or second grade, and will show increasingly strong emergent correlations with reading achievement as the children enter the higher grades and reading comprehension skills become a more important determinant of performance on reading tests.

While there is considerable support for our view of literacy and its development, no multi-dimensional longitudinal research has directly addressed the questions of interest to us. Thus, our work is the first to deal adequately with a whole array of hypotheses about the relationships between preschool experiences and later literacy outcomes.

Overview of Sample, Data Collection and Analysis

We have devoted considerable effort to locating and soliciting cooperation from our sample of low-income families, and from the preschool and kindergarten programs their children attend. We now have a sample of 80+ children, distributed over two cohorts of approximately 40 children each, who represent the kinds of children we are interested in. The modal parent has 12 years of education, and the few parents with more have typically returned to community college or vocational training programs after a period out of school. Thirty per cent of the sample is African American, 45% are single-parent families, one half of the families are on welfare, and all qualify for Head Start or other subsidized day care programs. Nonetheless, we have found in these families the very large degree of variability anticipated in parental literacy, parental support for child literacy, and quality of verbal interaction in the homes.

Home data. Data collection being carried out in the home includes the following specific procedures (see Snow & Dickinson, 1990, in press):

- An interview with the mother to gather demographic information, information about daily routines, uses of literacy in the home, home-school relationships, and maternal views about the child's literacy and overall development.
- Toy Play: mothers are asked to engage their children in play using toys we provide.
- Book Reading: mothers and children read two books which we provide.
- Elicited Report: mothers encourage their children to tell the experimenter about some past experience.
- Mealtime Recording: mothers are asked to record a typical meal time and send the tape in.

With the exception of the interview, all home data is being transcribed and entered onto computer disks for analysis using software developed by the Child Language Data Exchange System (MacWhinney & Snow, 1985; upon completion of our analyses, the transcript data will be donated to the CHILDES system and made available for further analyses by others). Interview data is being entered into a data base system. Correlational analyses on the first cohort's first and second home visits constitute the data which will be presented in the following paper on the social supports for literacy

development in the home.

School data. Data being collected in the school come from a number of sources including:

- Spontaneous Talk: The lead teacher and the target child are recorded using small tape recorders carried on their backs while observers make field notes regarding the on-going activities.
- Videotaping: Group times (book reading, group meetings) are being videotaped.
- Elicited Report: At some convenient time during the morning teachers are asked to have the target child tell them about some event that happened at home.
- Time Use: At half hour intervals the activities of all the children in the classroom are noted.
- Environmental Print: Displays of print around the room are noted to determine function, nature of production (e.g., teacher alone, child dictation) and location.
- Curriculum Rating: The general nature of the curriculum is rated using two tools: a language and literacy-focused series of questions we devised and portions of the Early Child Inventory Rating Scale (Harms and Clifford, 1980).
- Teacher Interview: Teacher's views regarding the role of preschool are elicited in addition to information about typical classroom routines.
- Child Language Rating: Teachers are asked to rate children's oral language along ten dimensions.

School recordings are being coded directly from the tape in a manner which enables computer analysis of code frequency and amount of time spent engaged in different types of language activities. Videotapes of book reading sessions are being coded for the content of talk and the style of book reading. Other school data are being coded and entered into our data base. Analyses on these sources of information for the preschool classrooms of the first cohort constitute the data for the third paper on the social support for literacy development in the school.

Language and literacy testing. In the spring of their kindergarten year, the first cohort children were tested using a test battery we have designed to tap the language and emergent literacy skills of kindergarten aged children. The test battery, called the School-Home Early Language and Literacy Battery - Kindergarten (SHELL-K) includes tests of several aspects of emergent literacy: phonemic awareness, letter recognition ability, print concepts, and writing skill; and tests of oral language abilities such as story comprehension and production skill, ability to produce causal explanations, a test of the ability to define words (a task found in previous research to be a sensitive indicator of the skill of distancing oneself from language), ability to describe a scene, and skill constructing a well-formed narrative. Finally, there is a task to provide a measure of nonverbal functioning. The connection between the home and school data and the outcome measures on the SHELL-K will be the topic of the final paper.

Family Talk: Sources of Support for the Development of Decontextualized Language Skills

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In this paper we will focus on the social supports for literacy development in the home, examining data collected from the first cohort during the first and second home visits of the Home-School Study of Language and Literacy Development. Each of the four activities involved in the home visits will be described and then a profile of the performance across tasks of three specific children will be presented.

Activities

The data for this paper are drawn from the talk that took place during four specific activities involving the children and their mothers in their own homes: toy play, book reading, elicited reports, and mealtimes. The mealtime talk included the entire family. During the four activities the mothers and children displayed a wide variety of styles of interaction. We have devised coding schemes for each task to measure features of interaction that may be most conducive to and predictive of school literacy.

Book Reading. At each home visit the mother was asked to look at a book brought by the experimenter, The Very Hungry Caterpillar by Eric Carle, and to look at a book chosen by the mother and familiar to the child. A second book was provided if the mother did not provide a familiar book.

Book reading was, in almost all cases, necessarily shaped and directed by the mother. Most mothers used a style of asking questions at intervals throughout the reading of the text. Two measures were of particular interest during the book reading activity. An information index was created as the ratio of the number of times the child gave information (both responses and spontaneous comments) to the mothers' requests for information. An information index of 1 indicated that the child answered the mother's questions and did not say more. An index greater than 1 indicated that the child was spontaneously providing information beyond that which was requested by the mother. An index smaller than 1 meant that a mother was making more than one request in order to elicit one response from the child.

The second measure of interest involved the content of the talk. All utterances by the mother and child were coded to indicate whether the comments and questions were immediate or non-immediate. While reading, the topic of the language used may be restricted to what the mother and child see before them, or the book may provide a joint topic and starting point for facilitating talk about what is not immediately present: previous experiences, predictions, thoughts, and associations. Non-immediate utterances move away from what can be seen on the page and include requests for thoughts and analyses about the character's motivation or spontaneous connections to the child's own world. Non-immediate talk is considered to be a type of decontextualized language skill, because it is more explicit, requiring less reliance on shared physical context. Non-

immediate interactions around the book may more closely reflect the skills that will be required in school for later successful literacy and school achievement. Example 2.1 contains non-immediate utterances by both mother and child.

Example 2.1

Child:	why she going to eat Hansel and Gretel?
Mother:	because she was hungry.
Child:	why was she hungry?
Mother:	because she didn't have any food.
Child:	but that's not food.
Mother:	I know it's not food.
Mother:	but she was a mean old witch and she ate little girls and boys.
Child:	but / but there's no / the witch in here.
Mother:	there's a witch in this book.
Child:	not in here.
Mother:	yeah / no not here!
Mother:	there / witches are only make believe.
Child:	but I like 'em.

In this example the child engages in non-immediate talk when she asks her mother about the witch's motive for eating Hansel and Gretel. When the mother points out that witches are only make believe, a fact not explicitly stated in the text, she is contributing to the child's world knowledge.

Table 2.1 presents the amount of non-immediate talk by the mothers, the percent of non-immediate talk during the reading of the book by both mothers and children, and the information index, for both the book provided by the experimenter and the book of choice, on both home visits.

Table 2.1

Book Reading Variables

Variable	n	Mean	SD	Range
% of Non-Immediate Talk Book V (HV1)	39	10.5	7.3	0-23.8
% of Non-Immediate Talk Book V (HV2)	37	12.7	10.1	0-37.5
% of Non-Immediate Talk Book X (HV1)	39	10.4	9.8	0-41.2
% of Non-Immediate Talk Book X (HV2)	38	16.1	15.0	0-42.9
# of N-I Utterances by Mother V (HV1)	39	4.4	3.6	0-12
# of N-I Utterances by Mother V (HV2)	37	3.8	3.4	0-15
# of N-I Utterances by Mother X (HV1)	39	4.4	5.6	0-24.0
# of N-I Utterances by Mother X (HV2)	38	5.1	6.4	0-28
Information Index Book V (HV1)	38	1.4	1.1	0-4.0
Information Index Book V (HV2)	36	1.6	1.2	0-5.0
Information Index Book X (HV1)	39	3.1	5.1	0-29.0
Information Index Book X (HV2)	38	2.7	4.2	0-21.0

V Very Hungry Caterpillar
X Book of choice

There is a trend towards a higher proportion of non-immediate talk during the second home visit. Although the proportional amount of non-immediate talk seems to increase with the older child in the reading of both types of books, the actual number of utterances of this type by the mother only increased slightly with the book of choice. When the mother read The Very Hungry Caterpillar the second time, she seemed to use less non-immediate talk. The higher proportion may be accounted for by an overall decrease in the amount of talk during reading from the first to the second visit. A slight increase occurred between ages 3 and 4 in the reading of the book of choice. The actual numbers, however, are an indicator of how rarely this type of talk occurs even with a familiar book. Although the children were older than four and a half years old at this visit, more than 80 percent of the talk about the book is either irrelevant to the content of the book or about immediately available information. The skills of the child that enable talk about the past, the meaning of words, interpretations of motives or feelings are being tapped less than 20 percent of the time.

The information index suggests that with the novel book (The Very Hungry Caterpillar) children do little more than answer their mothers' questions. Although the book is somewhat familiar on the second home visit and many children reported reading it at school, their involvement does not increase on the second visit. However, the index for the familiar book at ages 3 and 4 reflect greater involvement by the children; on average, they give about three times as much information as mothers request.

Elicited reports. During the home visit, mothers were asked to elicit a report of an event that the child had participated in. This was a fairly constrained activity in which mothers generally suggested an event that both had attended and then asked the child a series of questions about the location, participants, and major occurrences in order to get the story told to the experimenter. Example 2.2 is a typical elicited report.

Example 2.2

Mother:	tell me something.
Mother:	remember what we did Sunday?
Mother:	where did Mommy take you?
Mother:	Sean got to go on the boat.
Mother:	where did we go?
Mother:	all by yourself.
Child:	sprink.
Mother:	sprinklers.
Mother:	and what did we do there?
Child:	go in the sprinkles.
Child:	on a swing.
Mother:	on the xxx swings.
Mother:	on the sprinklers.
Mother:	and what did we have there?
Mother:	what did we also we get?
Mother:	before we went there?
Mother:	did you get your lunch?
Child:	0.
%gpx:	nods
Mother:	what did you get for lunch?
Child:	hamburgers.
Mother:	from where?
Child:	from MacDonald's.

(continues)

In this report, the mother initially had to prompt the child five times before getting a response. The child's contributions are triggered by the mother's questions.

Like the book reading transcripts, elicited reports were coded for the give and take of information between mother and child, and an index of child's give information moves divided by the number of mother's requests for information was computed for each elicited report. In addition, the child's number and proportion of utterances in which she gave information spontaneously were recorded. In the above example, the child's utterance "on a swing." is considered a spontaneous giving of information, because the child had answered his mother's question in the previous utterance and was giving

additional information. Table 2.2 displays the means and ranges of the information index, the number of times the child gave information spontaneously, and the percent of the child's give information utterances that were spontaneous.

Table 2.2

Elicited Reports Variables

Variable	n	Mean	SD	Range
Information Index (HV1)	37	0.76	0.65	0-3.50
Information Index (HV2)	37	0.85	0.70	0-3.00
Child Spontaneous GI's (HV1)	37	3.78	3.97	0-15
Child Spontaneous GI's (HV2)	39	4.59	6.73	0-26
% of Child's GI's Spont. (HV1)	34	30.8	24.8	0-83.3
% of Child's GI's Spont. (HV2)	38	28.2	29.9	0-100.0

At both home visits, the mean information index was below 1, indicating that this was a much more difficult task for the children than the book reading task, requiring them to give information without props or text to help them tell their story. Mothers tended to prompt the children repeatedly or to change questioning strategies in order to get a response. Mothers could simply repeat a question, or they could reduce the level of demand on the child in asking the question, moving from an open-ended questions (e.g., "What did we do yesterday?"), to a more specific question (e.g., "What did we do at the park yesterday?"), to a yes-no question (e.g., "Did we play on the swings?"). Some mothers had to use this stepping-down strategy repeatedly in order to get a response from the child, resulting in a low index. Representing the high end of the ranges of the index was one dyad's conversation, in which the mother simply nominated a topic and the child reported the entire event with little or no help from the mother.

The difficulty of this task for the children is also reflected in the measures of frequency of spontaneously given information. Children, on average, spontaneously gave information only three or four times at each home visit, accounting for about 30 percent of their give information moves.

Toy Play. During each home visit talk between the mother and child was recorded as they played with a variety of toys brought by the experimenter. The set of toys included a tea set, small animals, cars, people, and blocks. Toy play transcripts are in very preliminary stages of analysis.

Of interest during this activity was the amount and proportion of the talk that referred to pretend play. This kind of talk is of interest because it discusses less tangible concepts requiring more explicit language to clarify the context for the other person. Example 2.3 demonstrates such fantasy world talk, with the mother and child taking on the voices of the characters in a story they are constructing around the toys.

Example 2.3

Mother:	have you seen a big brown dog with a bone in his mouth?
%int:	falsetto
Child:	sure follow me!
Mother:	oh great!
Mother:	I was a little concerned about him.
%int:	falsetto
Child:	he's under here.
%act:	picks up person, has him uncover dog
Child:	here he is.
Mother:	oh doggie!
%int:	falsetto
Mother:	doggie what are you doin'?
%int:	falsetto
Mother:	we were so worried about you!
%int:	falsetto
Child:	it was raining and raining.
%int:	as if dog whining
Child:	we'll go some place.
Mother:	where?
%int:	falsetto
Mother:	let's go to the big firehat house!
%int:	falsetto
Child:	sure!
Child:	come on doggie!
Child:	you go under it!
Child:	you fit under it.
%act:	picks up fire hat, puts people under
Mother:	you could fit in it!
Mother:	come on dog!
%int:	falsetto
Child:	I'm hiding someplace else from the rain.
%act:	puts dog under sheet

As with book reading and elicited reports, an information index was computed. Table 2.3 presents the means, standard deviations, and ranges of the proportion of mothers' and children's fantasy world talk and the information index for each home visit.

Table 2.3

Toy Play Variables

Variable	n	Mean	SD	Range
% of Fantasy Talk by Mother (HV1)	39	54.4	19.1	0-85.1
% of Fantasy Talk by Mother (HV2)	39	47.0	20.3	4.3-86.0
% of Fantasy Talk by Child (HV1)	39	56.4	21.3	0-91.2
% of Fantasy Talk by Child (HV2)	39	50.5	23.5	0-88.4
Information Index (HV1)	38	1.5	.97	0-5.0
Information Index (HV2)	39	2.1	2.27	0.1-12.7

While the proportion of fantasy world talk appears to decrease somewhat for both the mother and the child from the first home visit to the second, the amount of fantasy world talk by the mother and child at each visit is very close. They are apparently matching each other in their talk around pretend play.

The means for the information index indicate that children go beyond responding to their mother's requests for information and take more of the conversational load on the second visit. The index was relatively high compared to that of both book reading and elicited reports. Understandably, this is an area in which the child typically is less dependent on the adult and can be more verbally independent.

Mealtimes. Recordings of mealtime conversations provided a source of more naturalistic talk to the samples of mother-child interaction. These conversations involved not only the child and mother, but other family members as well.

After the first home visit, 27 of 39 (69.2 percent) families returned tapes of mealtime conversations. Another 27 families returned tapes after the second home visit. A total of 31 different families returned at least one tape, while 23 families returned tapes for both first and second home visits.

There was a wide range of family constellations represented in the first cohort. Some families included other adults who contributed to mealtime conversations. Fathers were present in 14 of the 31 families' conversations (45 percent), and grandparents were part of the constellation in 2 homes (7 percent). Fifteen families (48 percent) were single-parent families. In 12 families (39 percent), the target child was the only child, and the remaining 19 families included other siblings.

At the end of each home visit, mothers were loaned a blank tape and tape recorder and asked to record what they considered to be a typical mealtime. How the mothers construed the task is of interest. Mothers were aware of the fact that we were studying their child's language and, because they were asked to place the tape recorder near the target child, the implicit message was that we wanted talk from that child. Therefore, the mother tended to make a concerted effort to draw that child into the conversation, occasionally discouraging the contributions of siblings, and even, in one instance, shushing a sister when she attempted to speak up. A few mothers, especially in

the first home visit, thought that this was some kind of performance, and asked the child to say his ABC's or sing a song. This kind of performance was less frequent in the second and third home visits. The presence of the tape recorder, then, made the situation somewhat artificial in varying degrees, but overall the conversations are believed to be a fairly representative sample of talk among family members at the time it was recorded.

Mealtimes provided us with the opportunity to listen in on patterns of interaction among family members. We were particularly interested in extended conversations in which family members jointly constructed narratives or explanations. Both of these types of talk were identified and analyzed for content and structure.

In order to get a sense of the target child's linguistic environment, we computed the proportion of the mealtime conversation that was narrative and explanatory talk. Narrative talk included conversation about past or future events, and explanatory talk sought to clarify logical connects between events, objects, or concepts. We hypothesize that the presence of these kinds of decontextualized talk will facilitate the ability to comprehend extended discourse and produce such discourse independently. Example 2.4 is a sample of narrative talk in one family at the first home visit, in which two preschoolers tell their older sister about an exciting event they had experienced together. Example 2.5 contains an explanation given by a child, in which she provides evidence for an assertion she has made.

Example 2.4

Elaine:	Darcy know what?
Elaine:	they made me look in Scott's yard.
Elaine:	know what they saw under the table?
Darcy:	what?
Elaine:	a dead mouse.
Child:	and we saw the blood!
Elaine:	and the heart.
Mother:	okay okay we're eating.
Elaine:	no!
Elaine:	we only saw the heart.
Mother:	yeah SIS.
Darcy:	oh.
Elaine:	I hated it.

Example 2.5

Child:	SIS had gym today.
Mother:	SIS had gym?
Child:	uhhuh.
Child:	'cause I saw her coming out of the gym.
Mother:	oh you did?
Child:	mmhm.

We recorded the frequency of narratives and explanations, and the proportion of the mealtimes that were narrative or explanatory in nature. We computed how much of the narrative talk and explanatory talk that each family member, especially mothers and target children, were responsible for. This was computed as a percentage of the narrative or explanatory talk in number of utterances that the individual produced. Table 2.4 presents the means, standard deviations and ranges of each of these measures when the child was age 3 and again at age 4.

Table 2.4

Mealtime Variables

Variable	n	Mean	SD	Range
# of Narratives (HV1)	23	4.52	3.25	1-15
# of Narratives (HV2)	21	4.19	2.67	1-11
% of Narrative Talk (HV1)	23	17.9	13.1	1.1-42.7
% of Narrative Talk (HV2)	21	11.9	7.4	0.2-30.6
# of Explanations (HV1)	27	16.8	13.2	2-45
# of Explanations (HV2)	27	15.0	8.1	0-27
% of Explanatory Talk (HV1)	27	17.2	8.2	3.4-30.7
% of Explanatory Talk (HV2)	27	15.3	8.4	0-35.1
% of Exp. Talk by Child (HV1)	27	27.5	14.4	0-50.5
% of Exp. Talk by Child (HV2)	27	29.7	14.5	0-66.7
% of Exp. Talk by Mother (HV1)	27	47.3	17.1	13.3-91.7
% of Exp. Talk by Mother (HV2)	27	47.0	13.5	21.4-73.8
% of Exp. Talk by Father (HV1)	14	15.7	16.0	0-48.3
% of Exp. Talk by Father (HV2)	11	17.3	11.4	0-33.7

There are roughly equivalent amounts of explanatory and narrative talk, on average, in both the first and second mealtimes. Children, even at ages 3 and 4, are very involved in explanatory talk, contributing 27.5 and 29.7 percent of the utterances in

segments of explanatory talk. On average, fathers are infrequent contributors to mealtime explanations, as reflected in Table 2.4, and in mealtime conversations overall.

Cross Task Correlations. An examination of correlations between the measures of the four tasks revealed positive associations between several child performances in the four different activities (see Table 2.5).

Table 2.5

Cross-Task Correlations of Child Measures at Ages 3 and 4

	Toy Play Index (3)	Mealtime % Exp. Talk by Child (3)	Mealtime % Exp. Talk by Child (4)
Toy Play Index (3)		.39*	
Toy Play Index (4)			.44*
Book Reading Index X (3)	.57 ***	.43*	
Elicited Report Index (4)	.37 *		
Elicited Report # Spont. GI's (4)		.40*	.55**
Elicited Report % of Spont. GI's (4)			.41*

*p<.05
**p<.01
***p<.001

Measures of the child's verbal involvement in three of the four tasks when the child is three are positively correlated. The child with a high information index in toy play tends to have a high information index during the reading of the familiar book and to engage in a high percent of explanatory talk during the mealtime. At age four, the proportion of child talk that was involved with explanations at mealtimes was again correlated with the toy play index. But it was also associated with two of the measures

of children's spontaneous talk during elicited reports and not with the book reading index. These associations suggest some predictability in child language performance in different activities, but also demonstrate that there are a number of different language components involved in these tasks.

Profiles: Zenia, Stan, and Brad

So far, we have examined characteristics of the 39 dyads overall. We will now examine the home environments and task performances of three individual children across the four activities.

Along with a description of the child's home environment, we will present a visual profile of the child's performance on the four tasks. The profiles indicate the individual's measures in relation to the other participants in the study on the four tasks. Each point represents the child's standardized score on that variable. The mean of each measure was computed and is represented by 0 on the y-axis, and the units on the axis are standard deviations away from the mean. Each dyad's score on each task is plotted relative to the sample mean.

On the x-axis are two key measures for each task. The two variables representing mealtime are the percent of explanatory talk and the percent of narrative talk occurring in the mealtime conversation. These measures represent the extent of the child's exposure to these kinds of talk in a relatively naturalistic setting. Elicited report variables are the information index and the percent of the give information moves that the child produces spontaneously. Toy play variables include the information index and the percent of the mother's talk that occurs within the fantasy world. For book reading, the two key variables are the information index and the proportion of talk during the book reading that is non-immediate.

Zenia. Zenia is the oldest daughter of a single black mother. She has an infant sister. Her family has a moderate social support network of friends and relatives. Zenia's mother reports having spent a brief period in a shelter for homeless, but we do not know the circumstances of the stay. She also reports having made some friends who worked in the shelter, who keep in touch. Zenia's mother is attending a nurse's training program, and hopes to transfer from her community college program to a four-year college. She is also in the National Guard. At the time of the first two home visits, the family lived in an urban apartment complex, supported by Aid to Families with Dependent Children (AFDC) payments.

Information about literacy experiences in the home was obtained through maternal interviews. Her mother reports that Zenia pretends to read books to her and when she is playing alone. They have between 10 to 25 children's books obtained from the supermarket, book stores and a book club. Zenia's mother reads to her, although they have no particular schedule. No one else reads to her at home. Zenia's mother also reads for pleasure.

Figure 2.1 is a performance profile of Zenia on the home tasks at both home visits. At the first home visit, Zenia's family mealtime included a very high proportion of explanatory talk, but a relatively low proportion of narrative talk. (She did not do an elicited report at the first home visit.) Zenia contributed a great deal to the toy play

conversation, which included a proportion of fantasy world talk that was slightly below the mean. Zenia's contributions to book reading were relatively high, and the percent of non-immediate talk during this activity was just above the mean of the sample.

On the second home visit, both the percent of explanatory talk and percent of narrative talk were slightly below the mean, whereas both elicited report variables were somewhat above. The toy play and book reading variables indicated performances that were the inverse of the first home visit performances. In book reading, when Zenia does most of the talking outside of the text, there is a smaller proportion of non-immediate talk than when the mother is controlling the talk.

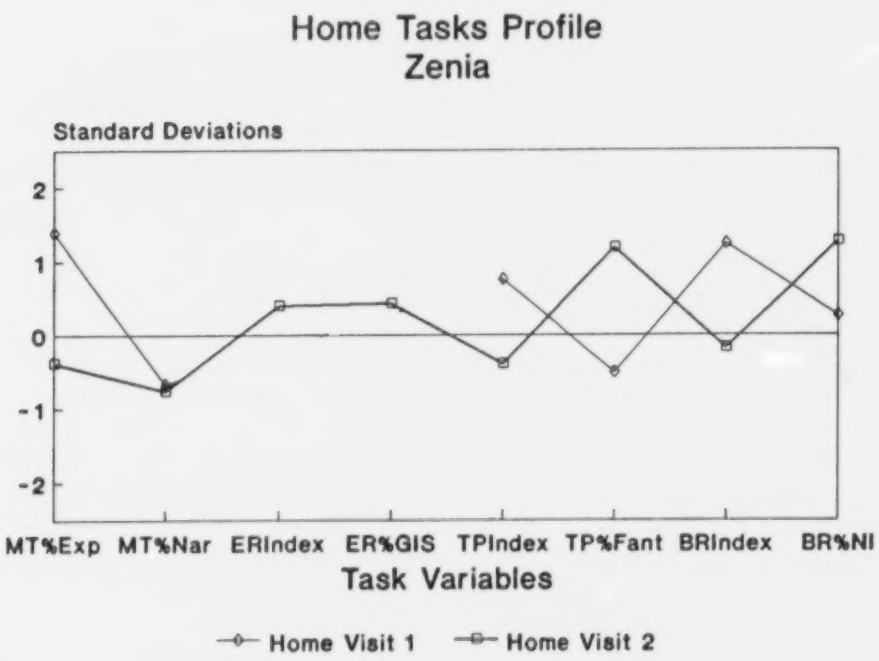

Figure 2.1

Stan. Stan lives alone with his mother on the third floor of a renovated mill which provides subsidized housing in a small city north of Boston. Although the housing project is new, Stan's unit is spartan. His windowless room has many toys. There are no books or magazines visible. This white family lives in an ethnically diverse urban neighborhood. The family has weak outside social supports, and the mother is the sole care provider. The mother left school in sixth grade due to health problems, and is supported by AFDC.

Stan's mother reports that he pretends to read when playing alone but not to anyone else. She reads to him at bedtime but he has no favorite book that she knows of.

She reports that they own fewer than 10 children's books which were obtained at a book store. When asked about her own reading interests Stan's mother said that she does not read at all.

Figure 2.2 presents Stan's home task performances. In the first home visit, Stan's standard scores are close to one standard deviation below the mean on all measures with the exception of the percent of fantasy world talk by the mother in toy play, which was slightly above the mean. On the second home visit, this measure joins the others in a very flat profile below the mean. Stan's book reading index is slightly above the mean at the second home visit.

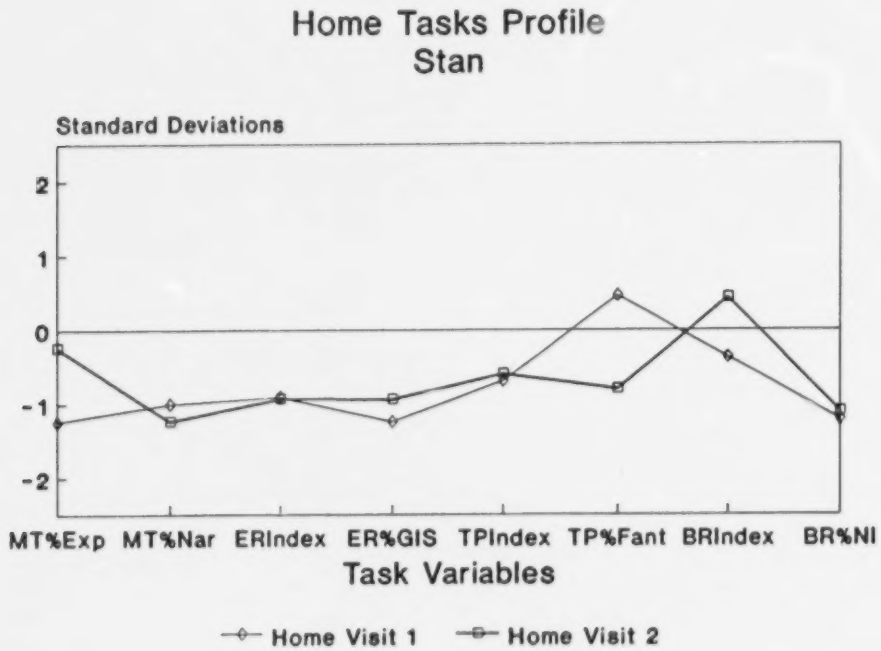

Figure 2.2

Brad. Brad is white boy living with his mother in a two-family house in a residential neighborhood of Boston. His grandmother and grandfather occupy the upstairs unit, and join Brad and his mother for supper. Brad's mother is a lifelong resident of the neighborhood. The mother has a high level of social support and help with Brad's care, especially from the grandparents. She graduated from high school and is employed at a large national company as a technician. She has aspirations to develop new job skills and move up in the company. Her income is higher than that of Zenia's and Stan's families.

Brad pretends to read books to his mother and when playing alone. He has no

particular favorite book that his mother knows of. He is read to both at night and during the day and is also read to by grandparents albeit less than once a week. They have more than 25 books obtained from the supermarket, book stores, and as gifts, and also use the library. When asked about her own reading interests Brad's mother named several favorite authors.

In Figure 2.3, we see that Brad has an average amount of exposure to explanatory talk during mealtime, but a higher than average proportion of narrative talk during mealtime. In elicited reports he was average on both variables. The information index during toy play was also average but the proportion of mother's fantasy world talk was somewhat higher than that of other mother's in the sample. Brad's involvement in book reading based on the information index was more than two standard deviations above the mean yet the proportion of non-immediate talk was more than a standard deviation below. In this case, Brad was highly involved in telling the story to his mother. In the second home visit, there was a flat profile across mealtime, elicited report, and toy play variables. The book reading information index and the proportion of non-immediate talk showed a similar profile to that seen in the first home visit.

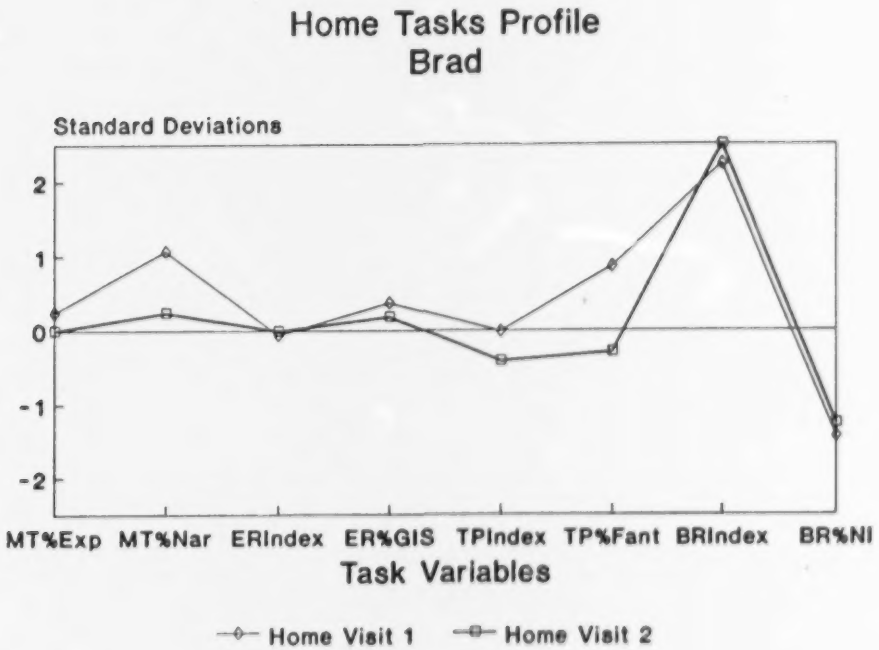

Figure 2.3

Conclusions

The families in this study represent a wide range of language environments. The four tasks we have explored give us a sense of the kinds of experiences and support these preschoolers receive in their acquisition of literacy.

The cases we have examined support a multi-componential view of language. A child who was strong in one language task may have been weak in another, and a mother who focussed on specific kinds of talk might have de-emphasized another. In the final paper of this symposium we will see how some of these different child language abilities and mother's interactional emphases, predicted literacy outcomes.

Preschool Talk: Patterns of Teacher-Child Interaction In Early Childhood Classrooms

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Twenty-five of the children in the study were visited in their preschool classrooms when they were three years old (12 were in home-based programs as three-year-olds and therefore did not have a school visit), and 37 were visited when they were four years old. The goal of the school visits was to capture as much information as possible about our target child's typical preschool language and literacy experiences in a single visit. In this paper we will be reporting on three kinds of data which were collected during these school visits:

1) a teacher interview which provided information about teachers' pedagogical orientations,

2) curriculum observation checklists which provided information about the overall classroom program, and

3) audiotapes of child's conversations during the morning which provided information about children's typical language experiences

We will give a brief overview of the types of data we collected and will then discuss the more specific variables which were derived from them. We will then present the findings from correlational analyses using these variables. And at the conclusion of the paper we will present portraits of the classrooms which the three children we have been profiling attended.

Teacher Interviews and Curriculum Observations

Teacher interviews covered the following topics: a) typical classroom schedule and the frequency of reading to large groups and small groups, b) typical activities during full and small groups times, c) teachers' general pedagogical goals, d) attitudes and practices related to fostering oral language and literacy, e) activities related to science or social studies, and f) teachers' preferences regarding children's literature and the process they used to select books to read aloud.

Interviews were supplemented with Curriculum Observation checklists that rated features of the classrooms (i.e., how it was organized, materials present) and provided insight into the implementation of the curriculum.

Interview responses and curriculum observations were composited into theoretically-based sets that reflect the three aspects of the classroom: teacher attitudes, time use, and curriculum implementation:

Teacher attitudes.

Print Skills: Concern for teaching letters and numbers which included academic readiness activities in group times.

Language and Cognitive Development: Ideas articulated reflecting attempts to support oral language growth and cognitive growth.

Broad Literacy Orientation: Desire to foster interest in books by integrating them into the classroom day and efforts to encourage writing to communicate ideas.

Literary Sensitivity: Knowledge and appreciation of children's literature and decisions about what books to read that reflected consideration of the book's qualities.

Socialization & Emotional Development: Teachers report efforts to help children adjust to functioning in groups and they express concerns reflecting a valuing of emotional development.

Time use.

Time spent in Free Activities: The proportion of time children spent using materials available in the room but during which there were no structured teacher activities available.

Time spent in Small Group Activities: The proportion of time children were able to participate in teacher-led activities involving small groups.

Time spent in Individualized Book Reading: The number of times per week the teacher estimated she read to individuals or small groups.

Time spent doing Assigned Seatwork: The proportion of time children spent doing work at tables assigned by the teacher, work that usually took the form of dittos.

Curriculum implementation.

Rich Content: Evidence of vigorous programs dealing with science and social studies topics.

Writing Program: The presence of a writing area, accessible writing materials, and displays of children's writing.

Book Use: The availability of books throughout the room and appeal of book corner.

Global Classroom Measures

The teacher interview and curriculum observation measures were further composited by placing together time use, attitude and curricular measures that covaried based on principal components analysis. This process resulted in the identification of five Global Classroom Measures.

Literacy Curriculum: Teacher attitudes reflecting a broad literacy orientation and curriculum observation scores indicating rich content and a strong writing program.

Language and Literacy: Teacher attitudes reflecting a broad literacy orientation, concern for fostering children's language and cognitive development, and special literary sensitivity.

Readiness Skills: Attitudes reflecting desire to develop school readiness skills and amount of time with children doing assigned work.
Laissez-Faire: Teachers provide large amounts of free time and place a high value on social-emotional growth.
Small Group Experience: Time is scheduled for directed small group activities, including reading to small groups of children.

The first four measures reflect patterns of covariation that occurred in both school visits. The final global measure, Small Group Language Experience, is used only when the children were four, because time spent reading to small groups and time in teacher-led small groups occurred with much greater frequency during that year.

Worthy of note is the fact that the means of the measures included in Language and Literacy and the Literacy Curriculum component increased substantially between the first and second school visit, indicating that teachers of four year olds place more emphasis on fostering literacy development. Interestingly, this changing focus did not take the form of an increasing skills orientation, because the means of the items included in the Readiness Skills Measure remained the same between the first and second school visit.

Coding of Interactions

During the school visits, the spontaneous talk of our target children and their teachers was recorded on audiotape while observers made field notes about the ongoing classroom activities. These recordings are assumed to reflect both the activities and types of talk that were typical for our children in their school settings. The average length of a recording session was two hours.

The tapes and context notes were transcribed and coded so that the resulting data files contained three kinds of information: the amount of time spent in different kinds of activities, the amount of time spent engaged in particular types of talk, and the amount of time spent interacting with teachers and children.

Activities. We coded four types of activities:

Free Play: Time when children were free to move about the classroom and select from a variety of self-directed activities; teachers did not provide structured activities.
Small Group Time: Children were engaged in an activity structured and directed by a teacher (for example, creating dinosaurs out of clay).
Large Group Time: Time when the teacher and all the children gathered together to read books, have discussions, play games, or engage in skill-focused activities (e.g. counting, calendar, reciting the alphabet).
Seatwork Time: Time when the children were seated at desks or tables and engaged in individualized seatwork.

As Table 3.1 shows, on average our target children were engaged in free play almost half of the time during which we recorded interactions . Some of the most common free play activities included building with blocks, doing puzzles, and playing house. Considerable

time was also spent in full group activities. Typical circle times (as full-group time is often called) included singing (traditional songs including the "ABC"s), attending to the calendar and the weather, and book reading. When the target children were four, there was a noteworthy increase in time spent in large groups. The time children spent in small groups, which occupied significant amounts of time each year, took a variety of forms and included math and pre-literacy activities, art projects, and book reading. Seatwork, which was focussed primarily on completion of worksheets, comprised little of the overall time in school, on average. Surprisingly there was less time spent in this manner the second year than the first year.

Table 3.1

Mean Percentage of Time Spent in Different Activities (from Audiotapes)

Activity	Percent Year 1	Percent Year 2
Free Play	46.5	47.8
Small Group	16.2	13.0
Large Group	22.9	28.7
Seatwork	6.3	3.3
Meal Time	8.1	7.2

Talk types. Interaction in each of these settings was also coded for the type of talk that took place. These categories include:

Pretending: fantasy-oriented talk, usually initiated, negotiated, and enacted by and between children.

Non-present: talk about the past including personal narratives and story retellings, or talk about the future including planning and plan attempts.

Conceptual Focus: talk that indicates broader requirements for understanding, including talk about language, world knowledge, and co-construction of ongoing events.

Book Reading: talk about books as well as the actual reading of a book.

Engaged Talk: talk that is not captured by any other category; includes general conversation and elements of child culture (e.g. talk about the backpack, toys from home, etc.).

Didactic: talk that is primarily aimed at imparting information; it includes instructions, procedures, and simple explanations regarding behavior (e.g. "don't hit him with that because it will hurt him").

Skill Routines: language routines familiar to all participants; includes naming and labeling, reciting numbers and letters, and singing.

Print Skills: print-associated talk, including decoding, pre-reading activities, and spelling practice.
Control Talk: talk that is managerial in tone and in which behavior is the primary target.
Non-Language: used to code extended periods of silence, gross motor activity unaccompanied by talk, and bursts of talk accompanying interactions lasting less than 5 seconds.

As Table 3.2 shows, our coding of the kinds of talk children engaged in revealed that the predominant category was "non-language". Activities that were not accompanied by any sustained language interactions comprised nearly half of all the time spent in their preschool classrooms. When the target children were three, the types of actual talk most likely to be engaged in were skill routines and didactic (or instructional) interactions. When the children were four, skill routines remained common, and the amount of time spent in control talk increased dramatically. There also was an increase in the amount of time spent on print skills and skill routines, but a drop in time spent reading books. The amount of general talk declined. Both years, non-present and pretending talk together comprised about 13% of all talk. Notably low both years was the amount of time spent in conceptually focussed talk.

Table 3.2

Mean Percentage of Time Spent in Different Types of Talk (from Audiotapes)

Type of Talk	Percent Age 3	Percent Age 4
Non-language	46.7	44.9
Didactic	9.7	6.3
Skill routines	9.2	11.0
Print skills	2.9	5.1
Pretending	6.3	7.8
Non-present	6.6	6.3
Conceptual Focus	1.4	3.1
Book Reading	4.9	3.5
Engaged Talk	8.6	3.9
Control Talk	3.7	8.0

Primary participants. Interactions were also coded on the basis of the primary participants in the interaction. When there was silence the child was coded as being "alone" even though he or she might have been engaged in parallel play. While this coding doubtless understates the amount of socially engaged time, it reflects our interest

in capturing the verbal interactions of children. As Table 3.3 shows, and as might be surmised from the previous results, children spent a lot of time without a conversational partner, with an increase of 10% from the first to the second year. The amount of time spent with teachers was considerable in the first year, and declined greatly the second year. The amount of time spent with other children was essentially the same both years.

Table 3.3

Mean Percentage of Time Spent Interacting with Adults and Children.

Interlocutor	Percent Age 3	Percent Age 4
No Conversational Partner	47.5	57.7
Teacher	41.5	29.6
Children	10.9	12.6

Results

First we examined whether teacher's pedagogical attitudes as measured by our interview were related to the nature of talk children engaged in. Table 3.4 presents the results of a correlational analysis between Global Classroom Measures and Talk Types. There were three patterns of special interest: 1) in both years the Readiness Skills measure of pedagogical orientation was related to the amount of talk related to print skills, 2) the Laissez-Faire approach was negatively associated with the amount of non-present talk and pretending when children were three and the amount of print-related talk when they were four, and 3) the Small Group Language Experience measure was associated with more engaged talk (i.e., informal conversations) and less time talking about print skills.

Table 3.4

Correlations Between Global Classroom Measures and Percentage of Time Recorded Engaging in Different Types of Talk

Age Three

Talk Types	Readiness Skills	Literacy Curr.	Lang. & Literacy	Laissez-Faire
Print Skills	.40*			
Non-Present			.34	-.51**
Pretend		.40*	.33	-.39*

Age Four

Talk Types	Readiness Skills	Literacy Curr.	Lang. & Literacy	Sm. Grp./ Lang. Exp.	Laissez-Faire
Non-Language	-.39*		-.48**		
Print Skills	.48**			-.38*	-.36*
Didactic	-.42*				
Engaged Talk				.38*	
Pretend					.29

* = $p < .05$; ** = $p < .01$; *** $p < .001$; **** $p < .0001$;
(no * = $p < .10$)

These correlations between teacher responses to interview questions and actual classroom talk indicate that there are linkages between the attitudes and practices reported by teachers and the actual programs they implemented. This finding indicates that our interview tapped important features related to teachers' ways of working with children -- a finding whose significance will become more apparent when we report our data revealing linkages between pedagogical attitudes and literacy outcomes.

We were also interested in determining how the type of classroom activities affected the kind of talk children engaged in. In Table 3.5 we report correlations which reveal that free activity time is associated with more pretending year one and more engaged talk year two. Year two free play was related to less skills oriented talk. In contrast, for both years the amount of time spent in groups (full groups especially) was associated with more skills oriented talk and in year one with less pretending. These result indicate clearly that the nature of activities scheduled play an important role in determining children's preschool language experiences.

Table 3.5

Correlations Between Percentage of Time Recorded Engaging in Different Types of Talk and Percentages of Time Observed Engaging in Different Types of Activities

Age Three

Talk Types	Free Play	Full Group	Small Group
Skill Routines		.80****	
Didactic	-.31		.53**
Conceptual Focus		-.37*	
Pretend	.43*		-.42*

Age Four

	Free Play	Full Group	Small Group
Print Skills	-.46**	.49**	
Skill Routines	-.33*	.39**	
Engaged Talk	.55***		-.27

* = p < .05; ** = p < .01; *** p < .001; **** p < .0001;
(no * = p < .10)

Finally, we were interested in examining the extent to which the identity of conversational partners affected the content of talk our children engaged in. Table 3.6 reveals that the amount of time spent with other children is strongly associated with pretending and the amount of time spent interacting with adults is associated with the amount of skills-related talk, with the focus of this adult-child talk being on print knowledge when children were four. These results suggest that other children were more interesting conversational partners than were adults as children tended to engage in pretend talk with each other whereas adults tended to introduce much more instructional topics. Thus, the identity of children's conversational partners, which is related to the way time is organized in classrooms, also significantly affects the nature of children's conversational experiences in preschool.

Table 3.6

Correlations Between Percentage of Time Recorded Interacting with Different Partners and Percentages of Time Observed Engaging in Different Types of Activities

Age Three

Talk Types	Alone	With Child	With Adult
Skill Routines	-.38*	-.33	.49**
Didactic	-.56**		.58**
Control	-.35		.41*
Engaged Talk	-.43*		.36
Pretend		.80****	-.31

Age Four

	Alone	With Child	With Adult
Print Skills	-.36*		.56***
Pretending	-.53**	.83****	

* = $p < .05$; ** = $p < .01$; *** $p < .001$; **** $p < .0001$;
(no * = $p < .10$)

Summary

Our varied classroom measures were related to each other in a number of interpretable ways, indicating that these measures each have validity and suggesting that we have captured some of the links between teacher attitudes, the programs they develop, and the nature of their moment-to-moment interactions with children. Additionally, our results point to three major patterns of results: 1) when children spend time with other children they often engage in pretend talk, 2) when children relate to adults the topic often has to do with skills-related issues, and 3) across the two years there is a shift toward greater adult focus on print-related matters.

Portraits of Focal Children's Classrooms

Zenia. Zenia, as described in the second paper, is a black child who lives with her mother and younger sister. For the first two years of the study, Zenia attended a private day care center located near her home. Stoneybrook operated in a basement classroom that accommodated 28 children ranging in age from 2.9 to 6 years. The majority of the children in the center were African-American, and there were also several Caribbean and Hispanic students. Teachers reported that all of the children were native English speakers, although Creole was spoken in several of the families. All four of the regular classroom teachers were African-American.

A typical day at Stoneybrook began with breakfast and a brief (15-20 minutes) free play period. The rest of the morning was spent in full group and individual activities designed to promote children's acquisition of preacademic skills. Within the large group setting, teachers asked individual children to recite the alphabet, count to 20, spell their first and last names, recite their addresses and phone numbers, and identify colors and shapes. Each child was expected to be able to complete these tasks flawlessly, and to sit silently while other children recited. During the remainder of the morning, children sat quietly at tables and completed worksheets that reinforced the same set of skills.

As this description indicates, and as Zenia's profile shows (see Figure 3.1), there was a strong emphasis at Stoneybrook on print skills and (although not depicted) on language routines. Zenia was slightly below the mean on all other types of talk. In Figure 3.2 we see that most of her time was spent in seatwork and large groups, and her classroom was below the mean in the amount of time spent in free play - a finding that is complementary to the types of talk she engaged in. From the global classroom measures, it is evident that Zenia's classroom was well above the mean in its orientation to readiness and, at least during the second school visit, was well below the mean in relation to a small group language emphasis.

Zenia
Types of Talk Engaged in at School

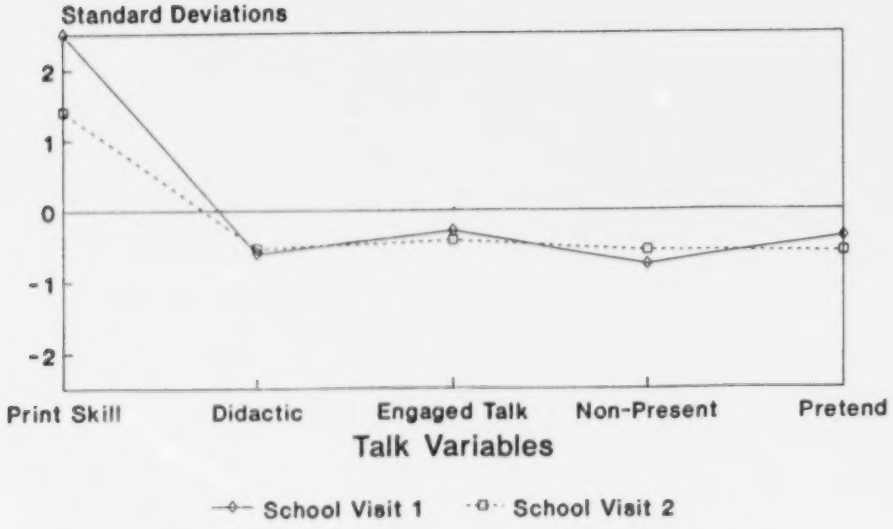

Figure 3.1

Zenia
Activities & Global Classroom Indicators

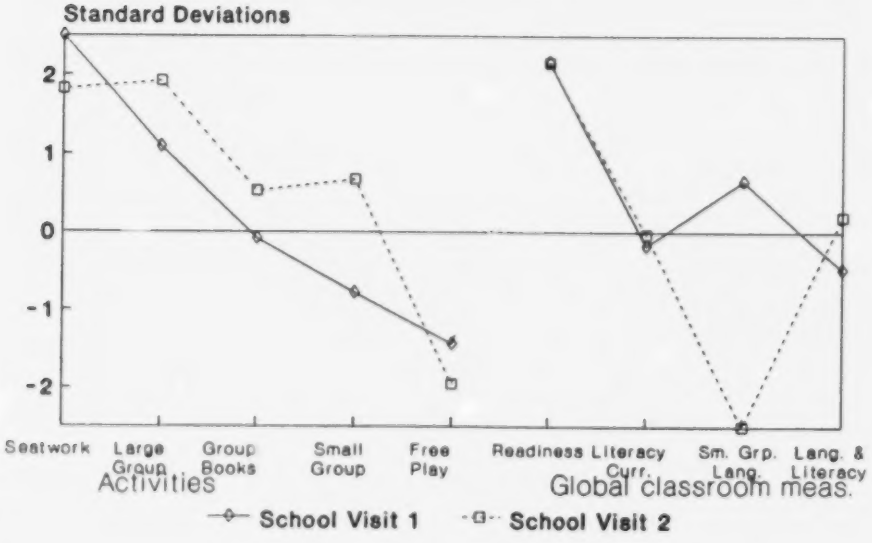

Figure 3.2

Stan. Stan, as described earlier, is a white boy who lives with his mother. For the first two years of our study, Stan attended Milltown Head Start. Milltown was housed in a local community building - Stan's class used a large, multi-purpose room during the morning, and a local club used it during the afternoon. Because of this, almost all of their curriculum and physical materials had to be portable.

Stan's classmates during his preschool years came from a diversity of backgrounds. While the majority of students were white, there were a number of children from Hispanic and Asian families. For both years, the teachers reported limited English fluency for at least a third of the group. The average group size was 18 children, and the age range was 2.9-4.9 years. Stan had the same teacher for both years, a woman with 15 years of Head Start teaching experience.

A typical day at Milltown Head Start contained a balance of free play time, large group time, and book reading or small group projects. During free play time, children circulated among activity centers such as blocks, dramatic play, sand and water play, and table-top activities such as beading, magnets, or drawing. Teachers were available to children during these times, and spent time engaging in conversation with them. Large group times were spent reading books (sometimes related to ongoing classroom curriculum), and sharing information. During meal times at Milltown, teachers sat with children and frequently engaged them in talk about their own lives and experiences.

As Stan's profile shows (see Figure 3.3), he spent a considerable amount of time during our first visit to his preschool engaged in non-present talk, most of which occurred as he talked to his teacher. During his second year, the emphasis in his language reflects a shift toward greater emphasis on print skills and didactic interactions. In terms of activities (see Figure 3.4), Stan's classroom was near the mean, reflecting the balance between large group, small group, free play, and individual activities. For both of his preschool years, Stan's classroom was above the mean in both the Readiness and Language and Literacy orientations. In contrast to his first year, Stan's second year contained a strong emphasis on Small Group Language experiences as well.

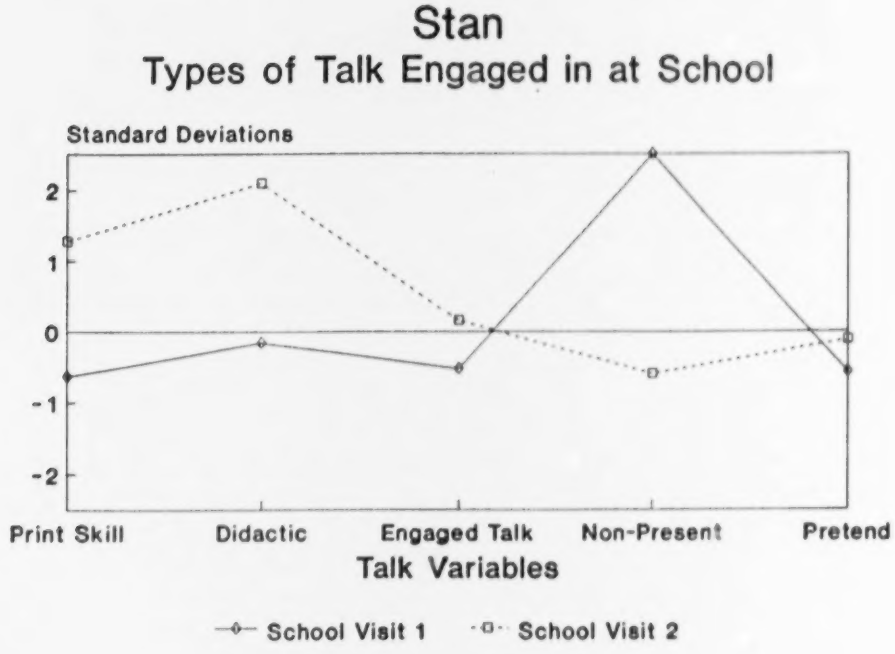

Figure 3.3

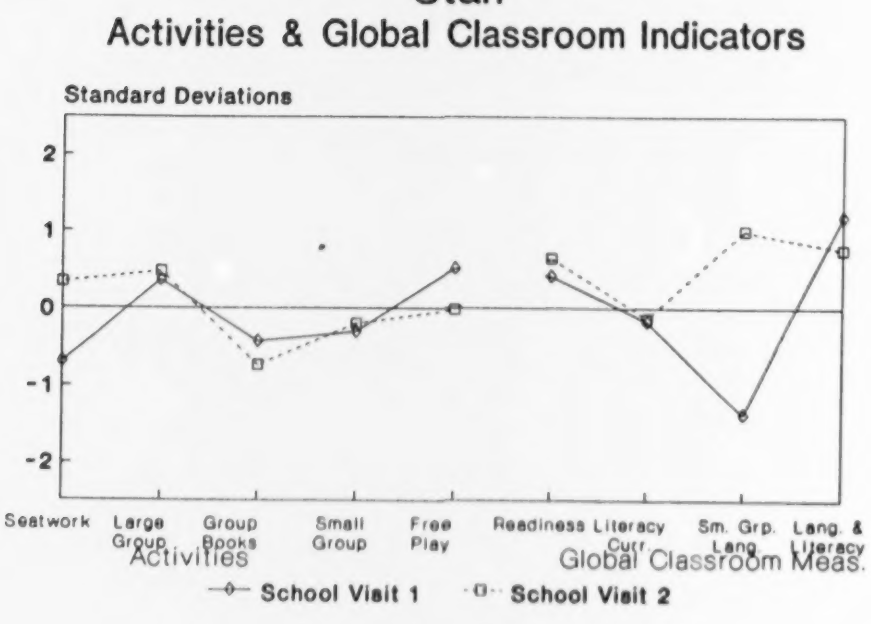

Figure 3.4

Brad. Brad, as discussed earlier, is a white boy living with his mother in a residential neighborhood in the Boston area. He attended the same public school-based preschool for the first two years of the study, but had a different teacher each year. Jefferson School was an urban elementary school that housed the three classrooms of this preschool program and several special needs programs. The facility was roomy and well stocked with traditional early childhood materials.

Jefferson School served a diverse population. The average class size was 15, relatively evenly divided between white, black, Asian, and Hispanic students. Teachers reported low levels of English fluency for their students, some of whom spoke Chinese, Vietnamese, French, Creole, or Spanish. Classrooms were usually staffed by two full-time teachers and an aide.

In Brad's three-year old classroom, time was divided evenly between free play, large group, and gross motor experiences. During free play and gross motor times, teachers circulated in the classroom while children selected from a variety of activities. Typical free play times included water play, manipulatives, blocks, and dramatic play. During "circle time", children and teachers sang songs and read books. During his second year, Brad spent more time in large and small group activities, and less time in free play. The 45-minute "circle time" for the four-year old group included completing the calendar and weather charts, taking attendance, reading flash cards, and having discussions or stories. The bulk of the morning was spent in small group, teacher-directed activities related to ongoing classroom themes (e.g. letters, colors, animals, holidays). Typical activities included art projects, flash card games, worksheets, and story reading.

As Brad's profile shows (see Figure 3.5), and as indicated by the classroom descriptions, he spent a considerable amount of time pretending during our visit when he was three. Although not depicted on the graph, it is notable that the amount of time Brad spent interacting with other children during our first visit was significantly higher than the mean. During our second visit, Brad was primarily engaged in talk relating to print skills. These findings are complemented by Figure 3.6, depicting time spent in activities and the relationship to the Global Classroom Measures. Brad's first year was spent mainly in free play while the second year was more concentrated in large and small group time, with group books becoming more important as well. The global classroom measures show that his first year classroom did not have a single, predominant orientation, but was below the mean on all measures. During the second year, there was an orientation toward Small Group Language and Language and Literacy experiences.

Brad
Types of talk engaged in at school

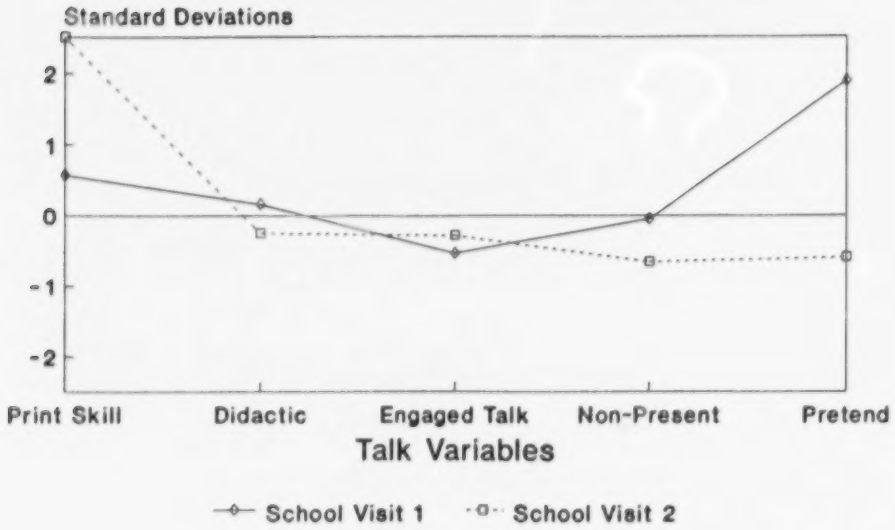

Figure 3.5

Brad
Activities & Global Classroom Indicators

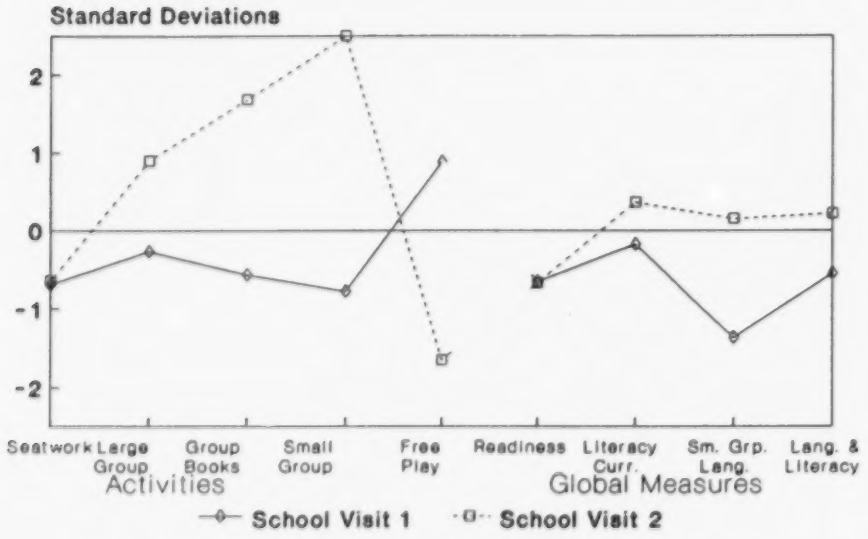

Figure 3.6

Summary of Profiles

There are striking differences between these three classrooms and the types of language fostered within them. Zenia's preschool experience centered on large group, skills-oriented interactions and she exhibited language almost exclusively related to those emphases during both of our visits. Stan's classroom provided a wide variety of activities and types of interactions, and his language and time usage across both years demonstrates this. Brad's classroom, similar to Stan's provided a diversity of experiences, but the emphasis clearly changed from his three-year old to his four-year old year.

The main similarity across these three classrooms, which was also evident in our full data set, is that the activities and types of talk used in preschool classrooms change as children get older. During the three-year old year, many types of talk and a variety of activities are fostered. During the four-year old year, the focus shifts to incorporate more small group experiences and literacy-related activities. Whether these patterns of time use and interaction are related to children's later language and literacy development will be the subject of the next paper.

Early Literacy: Linkages Between Home, School and Literacy Achievement at Age Five

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When the children in our sample were five years old, we administered a series of tests which we call the SHELL-K (the School-Home Early Language and Literacy Battery - Kindergarten). This battery of tests, which we have developed specifically for our study, assesses aspects of each child's language and literacy development; in this analysis, the results of these tests are being used as interim outcome measures related to the home and school predictors already presented. In this paper we will be presenting the following information:

1) an explanation of each of the tasks within the SHELL-K and the results of the SHELL-K for the cohort as a whole

2) the correlations between the outcome measures and the home and school predictors, and

3) the outcome measures for the three children we have previously profiled, in order to illustrate the effect that the school and home environments have had on the children's early literacy development.

At the end of the paper, conclusions based on the data analysis to this point will be discussed.

The SHELL-K Battery

The SHELL-K battery consists of 1) two standardized tests: the Peabody Picture Vocabulary Test (PPVT) (Dunn & Dunn, 1981), a test of verbal development, and the Test of Non-Verbal Intelligence (TONI) (Brown, Sherbenou, & Johnsen, 1982), a test of non-verbal development; 2) a series of emergent literacy tasks from the Early Childhood Diagnostic Instrument (Mason & Stewart, 1989): phonemic awareness, letter recognition, understanding of print concepts, and writing ability; and 3) several instruments developed by us to assess decontextualized oral language skill: a picture description task, a word definition task, a narrative construction task, and a story comprehension task. The entire protocol for SHELL-K appears as Appendix A.

This battery of tests was administered to each child at home by a home visitor who had been trained in test administration for this age group. The total test required from 45 minutes to an hour with frequent breaks between tasks. At the end of the session, each child was given a copy of the book The Snowy Day by Ezra Jack Keats which was used for the story comprehension section of the test.

PPVT and TONI. Both the PPVT and the TONI were scored in the conventional fashion yielding both raw scores and standard equivalent scores related to national

norms. On the PPVT our sample of children had a mean raw score of 63 with a range of 37 to 101. The mean standard equivalent score was 97, only slightly below the national norm, with a range of 70 to 133. On the TONI, the mean score for the quotient was 104 with a range of 70 to 136. It is interesting to note that the TONI results do not correlate with any of the other outcome measures or any of the home or school predictor variables at this time, indicating that the cluster of language events which we are analyzing are a distinctive set, not related to any underlying nonverbal intelligence factor.

Early Childhood Diagnostic Instrument: The Comprehensive Assessment Program (CAP). The Comprehensive Assessment Program (CAP) is designed for use with preschool-aged children and contains three different strands: an emergent literacy strand, a language strand, and a basic concepts strand. For the purposes of our assessment we chose to use the following tasks from the emergent literacy strand: Environmental Print In and Out of Context, Upper and Lower Case Letter Naming, Beginning and Ending Word Sound Awareness, Story and Print Concepts, and Writing. We further chose to combine the Vocabulary Definition and Classification task from the language strand with a definitions task formerly developed by Snow and her colleagues (Snow, Cancino, Gonzalez, & Shriberg, 1989).

The scoring of the tasks from the emergent literacy strand was done as prescribed by the CAP. Each child received individual scores on each task as well as a total score. The total scores were normally distributed for the cohort with a mean of 74 and a range of 27 to 111. Children at the upper end of this range demonstrated considerable control of pre-literacy skills for kindergarten-aged children. A composite score was developed from the individual task scores using principal components analysis; this composite became the variable which was used in the correlation analyses with the home and school predictors.

The definitions task. The definitions task, which combined words from the CAP and Snow's protocol, involved asking each child to define 14 nouns (alphabet, bicycle, bird, clock, diamond, donkey, flower, foot, hat, knife, nail, stool, thief, and umbrella) using the prompt, "What's a _____." Some sample answers are: for bird, "It's a flying animal with wings" and "It flies and lives outside;" for thief, "Is a person who sneaks around and gets things that doesn't belong to them" and "A thief is for stealing stuff."

The answers given were scored using Snow's scoring method. Scores were derived for total words, formal definitional quality (presence and quality of the superordinate and relative clause), informal definitional quality (descriptive, functional, or definitional features), communicative adequacy (whether or not we would know what the child was defining), and the number of formal definitions over the number of definitions given (percent formal definitions). Half of the sample had a score of 0 on the variable percent of formal definitions indicating that they did not give any formal definitions. At the other end of the spectrum, one child's definitions were all formal definitions.

A further task in this section was taken from the CAP. This consisted of asking each child to supply a superordinate. The request took the form, for example, "What are tables and chairs?" After the child's answer was given, she was then asked, "Can you tell me another kind of furniture?" The scores on this superordinates task was moderately

correlated with the percent of formal definitions given ($r = .54$, $p < .0005$), indicating that children who were able to provide a superordinate when asked directly were more likely to provide a superordinate (the basic requirement for a formal definition) when giving a definition. A definitions composite was constructed using principal components analysis from scores on quality of definition, supplement information, percent of formal definitions, and number of superordinates. This composite variable was used in the correlation analyses with the home and school predictors.

Story comprehension: The Snowy Day. The story comprehension task involved having the child and tester look at the book The Snowy Day by Ezra Jack Keats as the tester read the book aloud and asked comprehension questions during the story. The total score for this task was the number of questions answered correctly by the child. With a total possible score of 13, the range was from 3 to 13 with a mean of 7.7. The scores were relatively normally distributed on this task.

Picture description. For the picture description, the child was handed a slide viewer with a slide in it depicting a brightly colored scene outside a circus tent. The tester asked the child to look carefully at the picture, and then to describe the picture as completely as possible because the tester could not see which slide this was from a group of slides which she had brought along. The purpose of these instructions was to see if the child would be able to include specificity markers including verbs, adjectives, and locatives, rather than merely listing the various objects in the picture. A sample of a picture description which displays these specificity markers is the following:

> I see a clown and a man holding money. I see a man going to the circus and I see a girl and her little girl going to the circus.

The picture descriptions were scored for the total number of words, for the percent of adjectives, verbs, and locatives, and for whether a frame ("there's a ...," "it's a ...") was provided. The range for total number of words was from 5 to 72 with a mean of 25. At the low end of this range, children merely listed elements they saw in the picture; at the high end, they were beginning to provide the specificity markers we were looking for. A picture description composite variable was constructed by principal components analysis which incorporated all of these scoring elements.

The narrative construction task: The Bear Story. The narrative construction task involved having the child look at a sequence of three slides which depicted a family of teddy bears in an adventure involving a fly away kite and a baby bear's falling from a tree. The child was allowed to look at the three slides in sequence as often as she wished, but was then asked to put the slide viewer down before telling the story in order to avoid another picture description.

A sample bear story is as follows:

> One's rolling around in their little wagon and then one of the bears got up the tree and got the kite and then he fell down and they said, 'Speak to me' and he didn't answer 'cause he fell off the tree.

The bear story was scored for length by counting the number of words and number of clauses. The mean number of words was 55 with a range of 12 to 190. The mean number of clauses was 8.4 with a range of 2 to 29. Not surprisingly, these two scores were highly correlated.

The bear story was also scored for structure. Each of the clauses was coded as 1) appendage ("once upon a time," "the end"), 2) orientation ("there were five bears"), 3) complicating actions/orientations ("they were walking in the park"), 4) complicating actions ("the kite got stuck in the tree"), or 5) evaluations ("the baby bear was very scared") (for a more complete description of this coding see Peterson & McCabe, 1983, chapter 4). The stories were also scored for the presence or absence of certain elements: 1) was it mentioned that this was a story about bears?, 2) was the kite mentioned in the orientation?, 3) were there evaluative elements?, 4) were there fantastic elements?, 5) was a problem stated?, 5) was there a resolution proposed? And finally the number of times that the tester had to prompt the child to continue ("did anything else happen?") were counted.

Using principal components analysis, the Bear Story scores were composited into two variables: 1) a Bear Story literate composite, which demonstrated the extent to which the child provided features of a literate narrative (number of clauses, percent of clauses which were orientations, the presence of clauses which were appendages, the percent of clauses which were complicating action/orientations, if a problem was mentioned, if a resolution was mentioned, and if a kite was mentioned in the orientation), and 2) a Bear Story structure composite which demonstrated the extent to which the child provided the narrative framework for the story (number of clauses, words divided by clauses, the percent of clauses which were orientations, and the presence of clauses which were appendages). These composite variables were then used in the correlation analyses with the home and school predictors.

Correlations among the SHELL-K scores. In order to establish the relationships among these outcome measures, a correlational analysis was carried out using all of the outcome variables. As reported above, the TONI scores were not correlated with the other outcome variables. The other variables, however, were all correlated to from one to five other variables ($r = .32$ to $.64$, $p < .05$) indicating that these are related tasks, but that they are not measuring the same abilities.

Home Predictors and SHELL-K Outcomes

After the scoring of the SHELL-K test battery was completed, a correlational analysis was undertaken to examine relationships between the home task predictor variables and the SHELL-K outcome variables. Correlations of interest from this analysis appear as Table 4.1

In Table 4.1 all of the outcome variables appear in the left column except the TONI which was not correlated with any of the home task variables. These variables are: the Peabody Picture Vocabulary Test (PPVT); the composite variable of the scores on the subtests of the Comprehensive Assessment Program (CAP); the definitions composite variable (FDEF); the total correct answers on the Snowy Day comprehension questions (SNODAY); the Bear Story literate composite variable (BSLIT); the Bear

Story structural composite variable (BSFRM); and the picture description composite variable (PICDES).

Table 4.1

Correlations between Home Task Variables and Outcome Variables

	ERIndex 1	ER#GIS 2	MT%Exp 1	MT%Exp 2	MT#Nar 2	MT%Nar 2	BR#MotNI V 1	BR%NI X 1	BRIndex X 2
PPVT				.61***	.45*				
CAP		.40*				.50*	.41*	.44**	
FDEF	.39*								
SNODAY					.51*	.51*			.49**
BSLIT			.46*						
BSFRM		.44**					.42*		.48**
PICDES				.44*					

* p < .05
** p < .01
*** p < .001

The home task variables which were correlated with the outcome variables appear on the top row. These variables are: the score on the elicited report information index at the first home visit (ERIndex1), the number of utterances by the child in the elicited report which were coded as give information spontaneously at the second home visit (ER#GIS2), the percent of talk at the mealtime which was explanatory talk at the first and second home visits (MT%Exp1, MT%Exp2), the number of narratives told at the mealtime at the second home visit (MT#Nar2), the percent of talk at the mealtime which was narrative talk at the second home visit (MT%Nar2), the number of utterances by the mother which were coded as non-immediate when reading The Very Hungry Caterpiliar at the first home visit (BR#MotNIV1), the percent of the talk during the reading of the book of choice which was coded as non-immediate during the first home visit (BR%NIX1), and the book reading information index for the book of choice at the second home visit (BRIndexX2).

In assessing the connections between the home task variables and the outcome variables we looked particularly at the types of demands that the tasks made on the mother and child (or family and child) in the case of the home tasks, and the child alone, in the case of the SHELL-K test battery.

Elicited reports: Independent performance. The elicited report, for instance, is the most decontextualized of the home language tasks. In this task the mother and child are asked to produce a co-constructed narrative on the spot; unlike toy play or book reading, there are no supporting materials available for the mother and child to use to focus their attention or act as a springboard for discussion. Two of the three outcome variables which are correlated with two of the elicited report variables are ones which

required an unsupported and well-structured verbal performance by the child: the definitions composite and the Bear Story structural composite. Therefore, how much a child was able to contribute to the construction of the elicited report at the first home visit and how much spontaneous information the child gave at the second home visit predict how well the child would do on the definitions task and developing the structural aspects of the Bear Story, respectively. We think of this combination of predictors and outcome variables as measuring independent performance .

Mealtimes: Vocabulary. In one sense the mealtimes are at the opposite end of the task demand spectrum from the elicited report, i.e. we made no particular requests concerning mealtimes except that the tape recorder be near enough the child in the study so that he could be heard. It was, in fact, our decision to code the mealtimes looking for two kinds of decontextualized talk - explanatory talk and narratives. Interestingly, these two different types of talk, although collected in the same context - the family dinner table - are associated with some similar and some different outcomes. The percent of explanatory talk and the number of narratives at the second mealtime are correlated with the child's score on the Peabody Picture Vocabulary Test; the percent of explanatory talk at the second mealtime is also correlated with the composite variable for the picture description. These three findings indicate an association between explanatory and narrative talk and vocabulary development, as the PPVT is a direct test of vocabulary, and the components of interest in the picture description composite are the use of verbs, adjectives, and locatives. These findings would indicate that the proportion of talk at the mealtime which is explanatory or narrative in nature predicts how well the child who has heard this type of talk - whether she did or did not contribute much to it - will do later on tasks which test vocabulary development. We think of this combination of mealtime predictors and outcome variables as measuring vocabulary.

Mealtime: Narrative. The mealtime narratives, however, are also associated with the child's ability to answer comprehension questions during the reading of The Snowy Day. Both the number of narratives and the proportion of narrative talk at the second mealtime are correlated with the total score which the children achieved on the comprehension questions, indicating an ability to follow and understand a narrative even though the contexts - an oral performance at mealtime by any members of the family and a book reading with the child and the tester - are quite different. We think of this combination of mealtime predictors and the comprehension outcome variables as measuring narrative understanding.

Bookreading: Emergent literacy. The book reading task also displays a duality of associations, with correlations to both abilities in emergent literacy, and comprehension and development of narrative structure. Two measures, the number of non-immediate utterances by the mother during the first reading of The Very Hungry Caterpillar and the proportion of non-immediate talk during the first reading of the book of choice, are correlated with the child's composite score on the print and emergent literacy tasks of the CAP. This indicates, no doubt, that the mother who is doing a quality book reading job to her three-year-old, is also exposing her child to a variety of book experiences which helps the child to develop a familiarity with print and with how books are used

and handled. We think of this combination of bookreading predictors and outcome variables as measuring emergent literacy.

Bookreading: Narrative. One of bookreading variables - the number of non-immediate utterances by the mother in the first reading of The Very Hungry Caterpillar - is also correlated with the structural composite of the Bear Story indicating an association with narrative construction as well as with emergent literacy. Further, a third book reading variable - the book reading index for the book of choice at the second home visit, which is a measure of how much the child contributes to the discussion during the book reading - is correlated with the same structural composite for the Bear Story and with the comprehension measure for The Snowy Day. It is interesting that it is the book of choice which yields this association in that this book is one which the mother and child themselves choose to read and is usually a book available in the home which they may have read together before. How much of a lead the children take in discussing this book at four predicts both how well they will be able to answer the comprehension questions on The Snowy Day and how well they will be able to structure the telling of the Bear Story. We think of this combination of bookreading predictors and outcome variables as measuring narrative understanding and construction.

Other correlations. There are three correlations between home task variables and outcome variables which have not been included in the preceding discussion. Both the number of spontaneous information utterances of the child at the second home visit and the per cent of narrative talk at the second mealtime correlate with the composite scores on the CAP. We think of the CAP scores as indicating the child's abilities related to print and emergent literacy, therefore it is a bit puzzling to find these correlations with variables related to non-print oriented factors. Further, the correlation between the percent of explanatory talk at the first mealtime and the literate features provided by the child in the Bear Story does not have an obvious explanation. Perhaps each of these is an indicator of a constellation of factors which are present in families which provide a variety of helpful experiences for their preschool children.

Toy play. Notably absent from these correlations is any variable related to toy play. As mentioned above, the toy play analyses are in the early stages, but neither of the variables submitted to analysis - the percent of fantasy talk by the mother or the information index - was correlated with any of the outcome variables. Three possibilities exist: 1) talk during toy play may not be associated with the types of skills we are testing in the SHELL-K; 2) perhaps a more refined coding scheme will tap into associations which have not yet been identified, or 3) we may find that this type of talk has greater association with abilities revealed later on by these children. The first and last of these statements may also be true, of course, for the other variables from the home tasks which showed no associations with the outcome variables at this time.

School Predictors and SHELL-K Outcomes

In the same way that a correlational analysis was undertaken to examine relationships between the home predictors and the SHELL-K outcomes, a parallel analysis was done between the school predictors and the SHELL-K outcomes. In Tables

4.2 and 4.3 the patterns of correlation between the classroom variables and the outcomes are displayed. Two findings are immediately apparent. First, note that classroom measures based on our coding of the interactions that occurred on a single randomly selected day and measures derived from teacher interviews and observations of classrooms are related to a number of our outcome measures. Second, note that, with the exception of the picture description task, every outcome measure was related to at least two school variables. Third, while the strength of the correlations are generally somewhat lower than those found for the home variables, the number and strength of the correlations found between school variables and the outcomes indicates that classroom observations add considerably to our understanding of the experiences that contribute to our children's developing language and literacy competencies.

Table 4.2

Correlations between Three-Year-Olds' School Variables and Outcome Variables

	Global Classroom Measures			Talk Type	Activity Type	Conver. Partners
	Lang.& Lit.	Lit. Curr.	Readiness Skills	Pretend	Seat Work	Children
PPVT				.59**		.68***
CAP		.40*	.39*	.54**	-.39*	.42*
FDEF				.43*		
SNODAY				.46*		.47**
BSLIT	.50**					
BSFRM			.45*			
PICDES						

Table 4.3

Correlations between Four-Year-Olds' Classroom Measures and Outcome Variables

	Global Classroom Measures			Talk Type	Activity Type	
	Literacy Curriculum	Readiness Skills	Sm. Grp. Lang. Exp.	Engaged Talk	Full Group Book Rdg.	Seat Work
PPVT	.36*		.45*			
CAP			.40*	.45*		
FDEF					.37*	
SNODAY	.37*					
BSLIT						
BSFRM				-.40*		.39*
PICDES						

* $p < .05$
** $p < .01$
*** $p < .001$

It is important to point out that the variables that describe school experiences are different from those used to describe home experiences. The home variables characterize the nature of interactions that occur in selected home settings whereas the school variables provide more of an overview of the typical kinds of experiences children encounter in preschool. For example, our Global Classroom Measures include a description of teacher attitudes and generalized use of time. Even our measure of actual talk reflects average amounts of talk of a given kind spread across the day. Therefore, correlations between school measures and the outcomes should be thought of as shedding light on the effects of different kinds of preschool environments on development of language and literacy abilities rather than as variables that pinpoint the effects of particular experiences on language and literacy outcomes.

This insight leads us to organize our results in terms of the kinds of relationships found between outcomes and four different emphases found in our classrooms: 1) rich peer interactions, 2) exposure to rich and intensive adult language input, 3) opportunities to use print in functional ways, and 4) skills-oriented exposure to print. Results are organized into these groupings in Tables 4.4 through 4.7.

Peer Interactions. As can be seen in Table 4.4, when the children in the study were three, the measures most correlated with kindergarten outcomes were the amount of time spent in pretend talk and the amount of time children spent talking with other children - two measures that themselves were highly correlated. These measures related to a package of outcomes that will be encountered again: vocabulary (PPVT), story comprehension (SNODAY), early print-related skills (CAP), and the definitions task (FDEF). These findings can be interpreted in two ways that are not mutually exclusive. It may be that three-year-olds who are engaged in fantasy play provide each other with the kinds of language experiences that contribute to development of decontextualized abilities. A similar explanation works for print. In the course of their pretend play, three-year-olds use print for varied purposes and these experiences may contribute to acquisition of print knowledge. Alternatively, it may be that children who enter preschool with highly developed language skills engage in more pretending and, perhaps, pair up with other children with similarly high levels of language skill. Of course, even if this is true, it still may be that these language-skilled pairs may stimulate each other's continued language growth.

Table 4.4

Relationships between Rich Peer Interactions and Outcome Variables

	Talk Type	Activity Type
	% Time Pretending 3 year olds	% Time with Children 3 year olds
PPVT	.59**	.68***
CAP	.54**	.42*
FDEF	.43*	
SNODAY	.46*	.47**

* $p < .05$
** $p < .01$
*** $p < .001$

Rich Adult Language. A second cluster of related language experiences encountered in preschools is one associated with rich adult language. As can be seen in Table 4.5, one variable reflecting such experiences was Small Group Language Experience, which combined amount of time teachers reported spending reading to small groups and the amount of time they reported leading structured small group activities in the four-year-old classrooms. This variable was related to vocabulary and early literacy. A second variable reflecting rich adult input was the amount of time we recorded teachers reading books to large groups. In the four-year-old classrooms this variable related to the definitions task. The third variable in this group is Language and Literacy which reflects the teacher's interest in fostering language and cognitive development and her desire to foster broad uses of literacy. This variable was associated with the literate elements of the Bear Story.

Table 4.5

Relationships between Rich and Intensive Adult Language Input and Outcome Variables

	Global Classroom Measures		Activity Type
	Small Group Language Experience 4 year olds	Language and Literacy 4 year olds	Full Group Book Reading 4 year olds
PPVT	.45**		
CAP	.40*		
FDEF			.37*
BSLIT		.50**	

* $p < .05$
** $p < .01$
*** $p < .001$

The relationship between vocabulary and rich adult input echoes the mealtime results - more exposure to adult speech enhances vocabulary growth. The relationship between formal definitions and book reading likely reflects the effects of discussions about the meanings of words that occurred frequently during the book reading sessions in some classrooms. The relationship between the CAP and Small Group Language Experience also likely reflects instructional effects because teachers in the four-year-old classrooms often talked about print. Such conversations frequently occurred when teachers were working with small groups. The link between the literate composite from the Bear Story and the Language and Literacy measure requires a bit more explanation. This measure captures the most literary elements of the stories including appendages, orientation and complicating action/orientation clauses, as well as the statement of a problem and a resolution. Sensitivity to the need to include such elements may be fostered by the varied experiences telling and hearing stories that teachers rating high on the Language and Literacy variable claimed to provide. Also beneficial would be repeated conversations with teachers who strive to enhance language development, because these teachers are likely to encourage children to extend and clarify narratives.

Functional Print Experiences. The Literacy Curriculum variable, which included our rating of the classroom's writing program and the richness of subject-matter content, related to the CAP at age three and to vocabulary and story comprehension at age four (see Table 4.6). The link between availability of writing materials and encouragement to write when they were three lends support to the earlier explanation for the relationship between pretending and early literacy. It suggests that writing materials were available and that children likely made use of them - probably at least sometimes in the context of pretending. It may be that opportunities to play with print when they are three make an important contribution to children's developing understanding of print. When children were four the association between the Literacy Curriculum variable and the two language measures suggests the importance of rich and varied content and perhaps the beneficial effects of dictating stories to teachers - one form of early writing in our classrooms.

Table 4.6

Relationships between Functional Print Experiences and Outcome Variables

Global Classroom Measure

Literacy Curriculum

	3 year olds	4 year olds
PPVT		.36*
CAP	.40*	
SNODAY		.37*

* $p < .05$
** $p < .01$
*** $p < .001$

Before discussing the Skills-Oriented Print Experience, it is important to note the linkage between PPVT, CAP, Snowy Day (SNODAY), and the definitions task (FDEF) that appeared in various combinations in the three classroom environments discussed so far. We think of this set of variables as a literacy package. Although a more fine-grained analysis of classroom experiences would probably find that different kinds of experiences are associated with each outcome, our results indicate, that whatever these particular experiences are, they tend to co-occur in the broader cluster of experiences that we examined. Thus, it appears that classroom environments that successfully improve print-related abilities are those that also foster literacy-related language skills.

Skills-Oriented Print Exposure. Two variables, the amount of time we observed children doing seatwork, and teacher attitudes reflecting interest in fostering readiness skills, indicate a skills orientation to fostering early literacy. As Table 4.7 demonstrates, teacher belief in promoting readiness skills with three-year-olds is positively correlated with performance on the CAP. At the same time, however, three-year-olds in classrooms where seatwork is emphasized tend to score lower on the CAP.

The positive association between the readiness orientation of the teacher and early print skills suggests that some concern for actively attempting to foster literacy when children are three is helpful. The negative association between early print skills and seatwork, however, indicates that out-of-context print work does not promote early print skills.

Table 4.7

Relationships between Skills-Oriented Print Experiences and Outcome Variables

	Global Measure	Activity Type	
	Readiness Skills 3 year olds	Seatwork 3 yr. olds	Seatwork 4 yr. olds
CAP	.39*	-.39*	
BSLIT			.39*
BSFRM	.45*		

* $p < .05$
** $p < .01$
*** $p < .001$

Outcome Variable Profiles: Zenia, Stan and Brad

Now that we have information about what home and school predictors are correlated with the outcome variables, can we trace the home and school influences on the individual outcome results for the three children we have been profiling?

Zenia. The strongest connection between Zenia's results on the SHELL-K (see Figure 4.1) and school factors involves the previously discussed negative correlation between doing seatwork, a distinct feature of Zenia's classroom, and scores on the CAP, the early literacy measure. As the other results show, the scores on the CAP are correlated with a wide range of home and school variables; perhaps because of a lack of this variety of input, Zenia's score on the CAP falls below the mean.

By the same token Zenia's score on the PPVT is also slightly below the mean. In this study, school variables like time spent pretending with other children at age three, and work in small groups and a literacy-oriented curriculum at age four are all associated with how well a child does on the PPVT. None of these were features of Zenia's classroom experience.

On the other hand, Zenia's slightly above the mean scores on the definitions task and the Snowy Day comprehension questions may have received support from activities at home with her mother, such as the intensive explanatory talk that went on during the first mealtime and the variety of book reading experiences which Zenia was exposed to

at home. Further, her above the mean scores on the Bear Story variables match her results on the elicited report. Apparently, her ability to sustain a narrative is being fashioned through social interactions at home rather than at school.

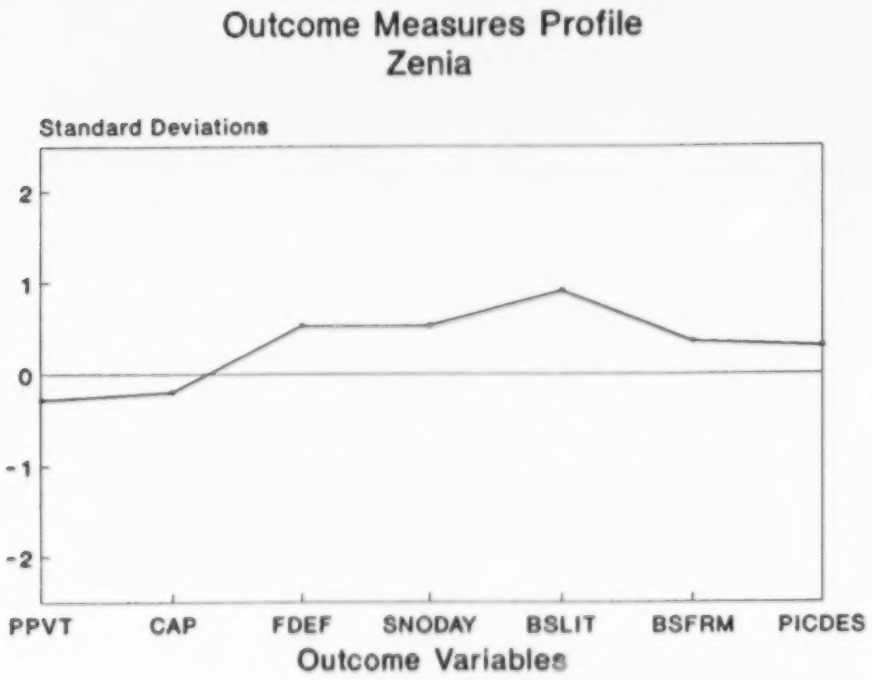

Figure 4.1

Stan. Stan's results on the outcome measures show a much more varied profile than Zenia's (see Figure 4.2). Although his scores on the PPVT and the CAP are on or near the mean, only the literate component of the Bear Story is above the mean, while his results on the definitions task, the Snowy Day comprehension task, the structural component of the Bear Story and the picture description are all well below the mean.

Considering what we know about the variables of interest from home and school, it would appear that it is Stan's school experience which is contributing most to his achievement on the SHELL-K. The home variables which might have contributed positively to PPVT and CAP - the quality of his mother's book reading and mealtime conversation - are well below the mean for the group. At school, however, Stan is high in Small Group Language Experience and in print skills and didactic interactions with his teacher as a four-year-old. Further, his classroom rates above the mean on the Language and Literacy activities which correlate with the literate features of the Bear Story. In this situation, the classroom does seem to be playing a compensatory role for Stan.

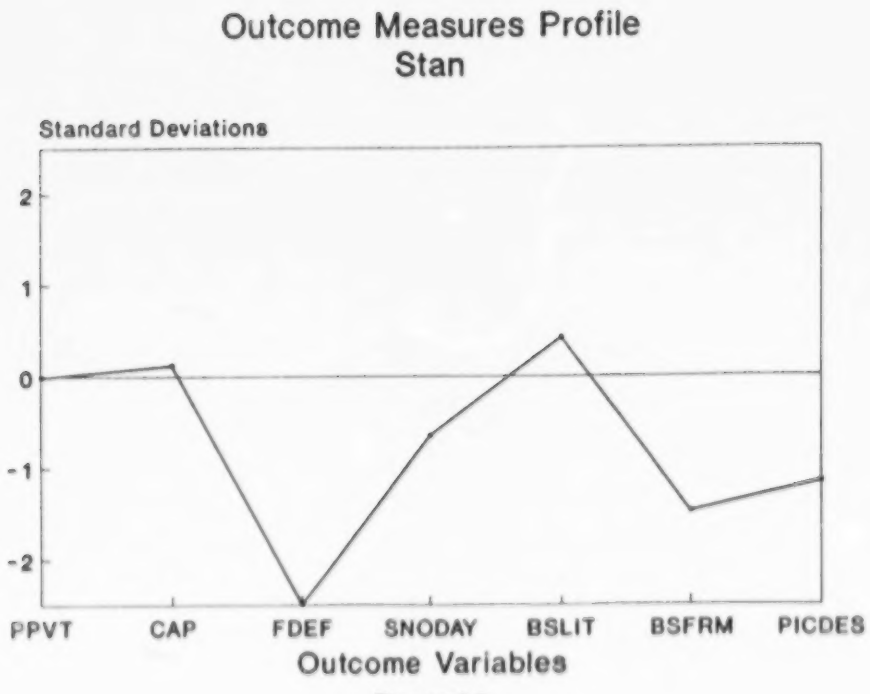

Figure 4.2

Brad. Brad's profile (see Figure 4.3) on the outcome measures is also uneven, but in this case his scores on the four measures in the literacy package - the PPVT, CAP, definitions task and the Snowy Day comprehension questions - are all well above the mean, whereas the two Bear Story composites and the picture description fall a bit below the mean. In Brad's case, both home and school experiences are contributing to these results.

At home as both a three- and four-year-old, Brad was involved in family mealtimes which were high in both explanatory and narrative talk and was able to demonstrate above average ability to co-construct an elicited report and take the lead in discussing a book with his mother - all variables which are associated with PPVT, CAP, the definitions task, and/or the comprehension questions from the Snowy Day. At school, Brad was involved in a lot of pretending as a three-year-old and work in small groups in a literacy oriented curriculum as a four-year-old - again variables which are associated with success on measures in the literacy package. In this case, there seems to be a definite synergy developed between Brad's home and school experiences which is supporting his acquisition of the skills tapped by these four SHELL-K tasks.

It is therefore a bit surprising that Brad scores below the mean on the Bear Story composite variables and the picture description. In fact, although Brad's contributions to the book reading index would predict a high score on the structural elements of the Bear Story, his family's level of explanatory talk at mealtime would predict a high score on the picture description, and the Language and Literacy orientation of his four-year-old classroom would predict a high score on the literate aspects of the Bear Story, none of these predictions, in fact, hold for Brad. It will certainly be interesting to continue to track Brad's progress in school to see if these relative strengths hold up in subsequent years.

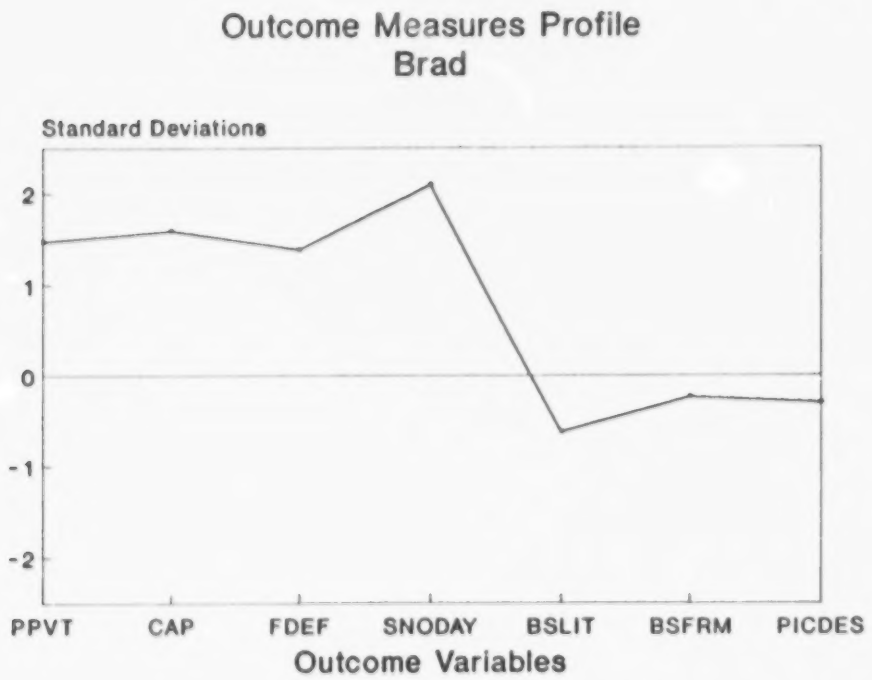

Figure 4.3

Conclusions

In conclusion, we would like to make three general points that summarize the findings reported in this symposium: 1) we have found general support for the model of literacy development proposed in the theoretical model presented in the first paper, 2) we have found clear evidence that both homes and schools make important contributions to the emergence of early language and literacy skills, and 3) we have found evidence that these skills emerge in a literacy package.

We have found support for our general model of literacy development. First, we found that literacy-based experiences do give rise to general literacy-related knowledge as well as specific print skills. Thus, measures of book reading are related to print knowledge and preschool measures of both narrowly focused print experiences and broader uses of literacy relate to print skills. Second, we found that certain kinds of conversational language experiences support development of literacy-related language skills. For example, explanatory and narrative talk at mealtimes, small and large group book reading in school, and varied measures that bear on the nature of talk in classrooms (e.g., pretending, teacher orientation to support language and literacy development) relate to measures of language ability such as vocabulary and narrative skills, measures that we anticipate will be related to reading comprehension in the years to come.

A second major conclusion is that the contributions of both homes and schools must be taken into account when one is examining the roots of literacy. All major outcome variables were related to both home and school measures and, in nearly all cases, these outcomes were related to more than one measure from both settings. Of course, untangling the particular contributions made by each setting is made much more complex if one is aware of the contributions of both settings, but if we are ever to understand how literacy is fostered we must begin to be aware of the range of settings that support literacy and of the variability in the linkages between particular literacy outcomes and these diverse experiences.

A third outcome, one not specifically predicted but one that is not surprising, is that the varied components of literacy that we examined appear to be emerging in a package. Vocabulary, story understanding, definitional skill and print knowledge seem to be correlating with similar home and preschool predictors. There are two possible reasons why these variables come together as a package: 1) certain experiences (e.g., rich mealtime conversations, good small group book reading opportunities) may support development of a number of literacy-related skills (e.g., vocabulary, ability to reflect on language, opportunities to examine print); alternatively, 2) families and preschools that provide rich experiences supporting one component of literacy (e.g., comprehension of extended text) may provide other experiences that support different skills as well (e.g., print knowledge). Of course, neither of these explanations can account for all of our results because there is variability in the linkages between home and preschool experiences; considerable additional data analysis will be necessary to clarify the pathways linking home and preschool experiences to subsequent literacy growth. In any event, it is clear that previous studies that have examined children's experiences in a single setting (e.g., book reading at home) may well have over-estimated the importance of that single context because they have been unable to determine whether the same family was providing quite different kinds of support for literacy development in other settings. As our data collection and analyses efforts continue we will strive to describe the multiplicity of relationships among these experiences and children's developing literacy competencies.

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Appendix A

Protocol for
School-Home Early Language and Literacy Battery - Kindergarten
(SHELL-K)

The SHELL-K is an assessment battery administered to children in the Home-School Study during their kindergarten year or when they are five years old. The battery consists of a series of age-appropriate activities done with a tester. It is not necessary for the mother of the child to be part of this set of tasks. We have found that it takes approximately one hour to administer the SHELL-K in its entirety. We administer the battery in the child's home, frequently at a kitchen or dining room table with minimal noise interference. These activities require concentration.

ACTIVITIES IN ORDER OF ADMINISTRATION

A) PEABODY PICTURE VOCABULARY TEST (PPVT)
B) THE SNOWY DAY by Ezra Jack Keats, BOOKREADING
C) EARLY CHILDHOOD DIAGNOSTIC INSTRUMENT: THE COMPREHENSIVE ASSESSMENT PROGRAM (CAP)
D) CIRCUS PICTURE DESCRIPTION TASK
E) BEAR STORY NARRATIVE CONSTRUCTION TASK
F) TEST OF NONVERBAL INTELLIGENCE (TONI)
G) BOOK IDENTIFICATION/TITLE RECOGNITION ACTIVITY

The entire set of activities is carried in a yellow, plastic briefcase for ease of mobility. Each child receives a copy of The Snowy Day as a gift and she may also receive stickers or some other enticement for doing well during a subtest.

A) PEABODY PICTURE VOCABULARY TEST (PPVT)

This is a standard test used to assess verbal development. The test consists of a plate with 4 pictures on each page. The tester reads a word and the child points to the picture he thinks depicts the word. A basal score is established at eight consecutive correct responses; a ceiling is established at six out of eight incorrect responses. The duration of the test can vary according to the ability of the child. At this age it runs from 5 to 20 minutes. It can be ordered with two versions: Form L (which we are using for the SHELL-K) or Form M.

Test publisher:

American Guidance Service
Publishers' Building
P.O. Box 99
Circle Pines, Minnesota 55014
Phone: 1-800-328-2560

B) THE SNOWY DAY - BOOKREADING ACTIVITY

This activity combines reading the story with questioning of the child during the story. Begin by asking the child:

Have you ever seen or read this book before? When? Where? Do you remember it very well?

Move on to the actual reading of the story with the child. It may help to move into a comfortable position for this activity encouraging the child to sit close to view the page. The questions follow the reading of each page.

1) Delete "winter" from the first line of the text. Ask the child: What time of year do you think it is?

2) Following the words: "Crunch, crunch, crunch..." say: Look at his footprints. Why are they different here from here? (point to the footprints at the bottom of the page).

3) What did Peter use to make another track in the snow?

4) Where did the snow come from?

5) Why didn't Peter join the big boys?

6) What does it mean to "pretend"?

7) What was Peter thinking about in the tub?

8) Where is the snowball? Where did it go? What happened to it? Why did it melt? How does that happen? How could he have saved the snowball inside?

9) Where do dreams come from?

This activity is tape recorded and takes 5-6 minutes.

C) EARLY CHILDHOOD DIAGNOSTIC INSTRUMENT: COMPREHENSIVE ASSESSMENT PROGRAM (CAP)

The CAP has its own set of instructions and scoring sheet. The subtests for the SHELL-K are as follows:

#2 ENVIRONMENTAL PRINT
#3 LETTER RECOGNITION
#6 SOUNDS IN WORDS (PHONEMIC AWARENESS)
#8 STORY AND PRINT CONCEPTS (GO BOOK)
#13 VOCABULARY/DEFINITIONS (WITH ADDITION OF SNOW WORDS) /SUPERORDINATES
#15 WRITING CONCEPTS: NAME, WRITTEN DESCRIPTION OF PICTURE, WORDS FROM LETTERS

More detailed instructions for administration and scoring are in the manual. The vocabulary/definitions/superordinates task must be tape recorded. This set of activities takes about 15 minutes.

Test authors:

Jana M. Mason, University of Illinois
Janice Stewart, Rutgers University

Test publisher:

American Testronics
P.O. Box 2270
Iowa City, Iowa 52244

Phone: 1-800-553-0030

D) CIRCUS PICTURE DESCRIPTION TASK

Preface this task with some talk about what you'll be doing next i.e. I'd like you to look at some pictures and talk about what you see. We'll be using a slide projector/viewer. This is how it works (demonstrate use). Then:

> I've brought a bunch of slides with me and I'm going to put one of them in the viewer - but I don't know which one it is, so I'd like you to tell (describe to) me as much as you can about the picture so I can tell which one it is.

This task must be tape recorded.

E) THE BEAR STORY NARRATIVE TASK

Preface this task with some talk about this being a DIFFERENT kind of task. Then say:

1) Look at these pictures while I get some of my things organized and see if you can make up a story about what's going on. (Give the child some time to look at the slides in sequence). Then say: Can you make up a story about it?

2) If the child needs more time to look at the pictures, let her look, but then put the viewer away for the story telling - otherwise the child will be tempted to do another picture description.

3) Ask again if the child will tell you a story about what is happening in the pictures.

4) During the telling of the story you may prompt the child with comments like, "Is that all?" "Anything else you want to tell me?"

This task must be tape recorded.

F) TEST OF NONVERBAL INTELLIGENCE (TONI)

This test is a language-free measure of cognitive ability. The tester asks the child to point to the picture she feels best completes the sequence or grouping seen at the top of each page. A basal is established at 5 correct consecutive answers; the ceiling is achieved when 3 out of 5 are incorrect. At this age, the children do not get much beyond 10 or 15 items.

This task takes about 3-4 minutes.

The authors are:
Linda Brown
Rita J. Sherbenou
Susan K. Johnsen

The address of the publishers:

PRO-ED
5341 Industrial Oaks Boulevard
Austin, Texas 78735
Phone: 512-451-3246

G) BOOK IDENTIFICATION/TITLE RECOGNITION

The following list is read to the child and the number correct is the score given. Time: 1-2 min.

Say to the child:

I'm going to read you a list of things that could be titles of books. Some of them really are names of books and some are names we just made up. I want you to listen carefully and tell me which you are sure are titles of books. Let's practice with a couple, okay?

- The Very Hungry Caterpillar
- My Bike is Broken!

(give feedback on each)

Be sure the child understands the task before continuing.

1. WHERE THE WILD THINGS ARE
2. MAKE WAY FOR DUCKLINGS
3. JOANNE
4. IT'S MY ROOM
5. BRAVE IRENE
6. HOT TOP
7. THE UGLY DUCKLING
8. JAMES AND THE GIANT PEACH
9. THE MISSING LETTER
10. FROG AND TOAD
11. THE SCHOOLHOUSE
12. GREEN EGGS AND HAM
13. THE HAPPY LION
14. IRA SLEEPS OVER
15. HE'S YOUR LITTLE BROTHER
16. THE STORY ABOUT PING
17. DANDELION
18. THE HIDDEN ONE
19. WHISTLE FOR WILLIE
20. SWIMMY
21. THE LOST SHOE
22. CAPS FOR SALE
23. PETUNIA'S POCKET
24. TIKKI TEMBO
25. THERE'S A NIGHTMARE IN MY CLOSET
26. A POCKET FOR CORDUROY

This task will take about 3-4 minutes.

Scoring manuals and other information related to the administration of these tasks can be obtained from:

Patton Tabors
316 Larsen Hall
Harvard Graduate School of Education
Cambridge, MA 02138